

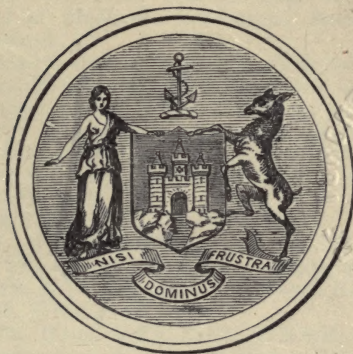
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ALPHABETICAL LIST

OF THE

CONTRIBUTORS OF ORIGINAL ARTICLES.

- ADAMS, CALVIN THAYER, M.D., Ex-House-Surgeon of the New York Hospital.
- AFFLECK, J. O., M.D., Physician to the Royal Infirmary, Edinburgh; Lecturer on Practice of Physic and on Clinical Medicine, Edinburgh Medical School; Examiner in Clinical Medicine in the University of Edinburgh.
- ANDERSON, T. M'CALL, M.D., Professor of Clinical Medicine, University of Glasgow.
- ANNANDALE, THOMAS, F.R.C.S. Ed., Regius Professor of Clinical Surgery in the University of Edinburgh.
- ARNOTT, Surgeon-Major JAMES, M.D., Professor of Midwifery, Grant Medical College, Bombay.
- BALFOUR, J. CRAIG, L.R.C.P. & S. Ed., Redbourne, Lincolnshire.
- BALLANTYNE, J. W., M.B., M.R.C.P. Ed., Assistant to the Professor of Midwifery in the University of Edinburgh.
- BARBOUR, A. H. FREELAND, M.D., F.R.C.P. Ed., Lecturer on Midwifery and the Diseases of Women in the School of Medicine, Edinburgh; Assistant-Physician for Diseases of Women, Royal Infirmary, Edinburgh; Inspector for Examinations in Midwifery.
- BOYD, JOHN, M.D., Slamannan.
- BRAMWELL, JAMES P., M.D., L.R.C.S. Ed., Visiting Surgeon, Perth Infirmary.
- BREWIS, N. T., M.B., F.R.C.P. Ed., Physician for Diseases of Women, New Town Dispensary; Lecturer on Diseases of Women, Edinburgh.
- CATHCART, CHARLES W., M.B., F.R.C.S. Eng. and Edin., Lecturer on Surgery, School of Medicine, Edinburgh; Assistant Surgeon, Royal Infirmary, Edinburgh.
- COTTERILL, J. M., Assistant Surgeon, Edinburgh Royal Infirmary.
- CROOM, J. HALLIDAY, M.D., F.R.C.P.E., Physician to the Royal Maternity Hospital; Physician to and Clinical Lecturer on Diseases of Women, Royal Infirmary; Examiner in Midwifery, University; Lecturer on Midwifery and Diseases of Women, School of Medicine, Edinburgh.
- CURRIE, ANDREW S., M.D., Lydney, Gloucestershire.
- DOUGLAS, KENNETH M., M.B.
- FAYRER, SIR JOSEPH, K.C.S.I., LL.D., M.D., F.R.S.
- FELKIN, ROBERT W., M.D., F.R.S.E., L.R.C.P., L.R.C.S.E., etc., Lecturer on Diseases of the Tropics and Climatology, Edinburgh School of Medicine.
- FERGUSON, WILLIAM, M.D., Surgeon to Chalmers's Hospital, Banff.
- FOULIS, JAMES, M.D., F.R.C.P. Ed.
- GIBSON, G. A., M.D., D.Sc., F.R.C.P. Ed., F.R.S.E., Lecturer on Materia Medica and Therapeutics, School of Medicine, Edinburgh.
- GRAY, JAMES ALLAN, M.A., M.D., F.R.C.P. Ed.
- GREENFIELD, W. S., M.D., F.R.C.P.L. & E., Professor of General Pathology, University of Edinburgh.
- HART, D. BERRY, M.D., F.R.C.P.E., F.R.S.E., Lecturer on Midwifery and Diseases of Women, Surgeons' Hall; Assistant Physician, Royal Maternity and Simpson Memorial Hospital; Assistant Gynæcological Physician, Royal Infirmary, Edinburgh.
- HAVELOCK, JOHN G., M.B., C.M.
- HELME, T. ARTHUR, M.B., Physician to the Women's Dispensary, Edinburgh; Clinical Assistant in the Gynæcological Department, Royal Infirmary, Edinburgh.

- HODSDON, J. W. B., M.D., F.R.C.S. Ed., Assistant Surgeon, Edinburgh Royal Infirmary.
- LANG, W. SCOTT, M.D., F.R.C.S. Ed., Lecturer on Surgery, School of Medicine, Edinburgh.
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- M'BRIDE, P., M.D., F.R.C.P.E., F.R.S.E., Surgeon to the Ear and Throat Department, Royal Infirmary, and Lecturer on Diseases of the Ear and Throat, School of Medicine, Edinburgh.
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- MURRAY, R. MILNE, M.A., M.B., F.R.C.P. Ed., F.R.S.E., Lecturer on Midwifery and the Diseases of Women, Edinburgh School of Medicine.
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- NEVE, ARTHUR, F.R.C.S. Ed.
- OLIVER, JAMES, M.D., F.R.S.E., Assistant Physician to the Hospital for Women, London.
- PAIRMAN, T. WYLD, L.R.C.P. & S. Ed., Te Awamutu, Auckland, N.Z.
- PARKER, ROBERT WILLIAM, M.R.C.S. Eng.
- PATON, D. NOEL, M.D., F.R.C.P.E., F.R.S.E., B.Sc., Lecturer on Physiology, School of Medicine, Edinburgh.
- PETTIGREW, J. BELL, M.D., LL.D., F.R.S., F.R.C.P., Laureate of the Institute of France; Chandos Professor of Medicine and Anatomy, and Dean of the Medical Faculty, University of St Andrews.
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- THOMSON, JOHN, M.B., C.M.
- TROUP, FRANCIS, M.D., M.R.C.P. Ed., Assistant Medical Officer, Longmore Hospital.
- TURNER, Sir WM., M.B., LL.D., F.R.S., Professor of Anatomy, University of Edinburgh.
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- WOODHEAD, G. SIMS, M.D., F.R.C.P. Ed., Superintendent of the Royal College of Physicians' Laboratory.

THE
EDINBURGH MEDICAL JOURNAL.

Part First.

ORIGINAL COMMUNICATIONS.

I.—THE DIAGNOSIS OF EARLY PHTHISIS BY THE
MICROSCOPE.

By FRANCIS TROUP, M.D., M.R.C.P. Ed.

(Read before the Medico-Chirurgical Society of Edinburgh, 2nd May 1888.)

It has long been the belief of the laity that consumption is an infectious disease, and this persuasion has acquired justification and scientific foundation from the discovery, simultaneously made by Koch and Baumgarten, of the specific bacillus of tubercle, and the facts of experimental pathology leave no doubt as to this parasite being the cause of tuberculosis.

Some, however, speak as if after all it may not be the bacillus itself, but some extra-bacillary matter secreted or excreted during its growth, which causes the mischief. This supposititious matter, however, seems so identical with the bacillus that it is never noxiously operative save in its presence, and is transmitted from generation to generation of bacilli in pure cultivations. If this chemical virus really does exist, it should therefore be easily demonstrable in those pure cultivations, and should be searched for in them alone. To examine sputum and find in it alkaloids of a poisonous nature is not scrupulous enough; there are many micro-organisms which flourish side by side in expectoration, and it is random work to say that any noxious matter detected is the derivative of one microbe rather than another.

It is admitted on all hands that inoculations of pure cultivations of tubercle bacilli, or of tubercular stuff containing them, into animals susceptible of the disease, cause, in a definite time and in a definite series, certain morbid phenomena, which are summed up under the name of general tuberculosis; but how is a spon-

taneous localized tuberculosis, a chronic phthisis, for instance, brought about? We speak in a vague way, and vary the formula of our ignorance by saying that the general disease is caused by the violent intrusion of relatively enormous masses of the bacilli into the organs of a healthy animal effected by the inoculations; that the entrance of only a few into sound lung-tissue causes a phthisis. We talk of "immunity," "individual predisposition," "morbid weakness of tissues," "heredity," and so on, to account for the fact that some people fall victims to phthisis and others do not. It is matter of common experience to know of whole families swept off by this disease, strong and weak alike; or to see among the children of the same progenitors the most herculean of the flock succumb, and the weakling, with compressed chest and bent spine, spared.

We speak also of traumatism of the lung, catarrhs, and diverse infiltrating inflammatory processes, as if they were necessary preparatory lesions for the reception and colonization of the bacillus. Daily experience again teaches us that those conditions are not indispensable; no tubercle bacilli will be found in the bronchial secretions of a non-phthisical person, however long a catarrh may have endured; and, on the other hand, in a supposed trifling cold of only four weeks' duration, happening in a person up till then absolutely free of demonstrable lung disease, I have detected bacilli and fragments of elastic tissue.

It is supposed that the air contains in abundance the spores of the bacilli, or the bacilli themselves, in a condition capable of growth; that they are inhaled, and that a damaged pulmonary tissue affords them a suitable nidus, and becomes the *atrium morbi*. Now there are certain normal arrangements of the body which afford effectual protection against the penetration and multiplication of bacteria. This is well illustrated by the fact that many years of extrauterine life are needed to pigment the lungs with the particles of carbon so richly suspended in the air we breathe. Baumgarten has tried to make cultivations from portions of tracheal and bronchial mucous membrane and lung-tissue of healthy animals living in his laboratory, immersed among bacteria of all kinds, and failed to grow fungi of any sort, thus showing that practically the pulmonary apparatus was free of micro-organic life. He also placed plugs of wadding on the branders of a stove with a strong draught, soaked the flooring of the room in which it stood with liquids and solids full of virulent tubercle bacilli; in the traffic of walking over and of sweeping the floor, the dried bacterial stuff was raised up in clouds of dust. The wad stopples were thus exposed for weeks or months, and rabbits were inoculated with bits of them, which presumably should have been filled with tubercle microbes, but no tuberculosis resulted. In a small way I have made careful endeavours to find the bacilli in the breath of consumptives, but without positive

result. From all this it would seem that the air really contains a very minimal quantity of tubercle bacilli in a condition capable of causing infection. Probably drying causes them to lose their original virulence and energy of growth, and they find themselves unable to take root and flourish even in favourable ground. How then can a phthisis, which is commonly supposed to be an inhalation tuberculosis, be acquired in Nature's ways when so few tubercle bacilli exist in the atmosphere in a potentially infective condition? It is true that the forced inhalation of great masses of bacilli contained in pure cultivations or in richly bacilliferous sputum will excite a lung tuberculosis, but this violent process is very dissimilar to what takes place in Nature's laboratory.

In answer to this question three factors may be supposed to play an important part. 1st, By the use of the milk of tubercular mothers of the human species and the eating the flesh and drinking the milk of tubercular animals, the specific bacillus may be introduced into our bodies. 2nd, It is not unthinkable that the bacillus itself, and not a mere disposition, may be inherited. In a recent communication from Baumgarten he informs me that he stands, as yet, almost alone in Germany in the adoption and advocacy of this view. One is free to confess, however, that the pathological rarity of demonstrable embryonic or foetal tuberculosis militates greatly against this opinion. 3rd, Phthisis may be, oftener than we are accustomed to think, not a primary disease, but a secondary infection from pre-existing cheesy tubercular foci, it may be in some distant region of the body. Of course this supposition only throws back the question a stage, and does nothing towards its solution.

I shall not occupy the time of this Society by describing the tubercle bacillus in detail; its appearance is abundantly well known to most of us. I content myself with showing photographs of its form and grouping as it appears in sputum, and also its pure cultivation, for the beautiful specimen of which I am indebted to the great kindness of Koch. I may also mention that I have succeeded, after many failures, in growing it directly from sputum, and with no more expensive an incubator than an empty biscuit box. The magnification of the photos is 550 diameters, and it is easily seen from them that the bacilli are not so uniformly slender and regular in size as they are depicted in the drawings in Koch's *Mittheilungen*. In sputum, to which alone my remarks apply, they are often found aggregated into heaps, or lying together in twos and threes with their long axes parallel, or forming rectilineal figures of four to eight, as if they had been enclosed in a cell whose walls had disappeared and permitted their dropping out while retaining their intra-cellular arrangement. Frequently they are seen to be very much beaded—"gekörnt" is the German adjective; they then seem made up of from three to ten minute cocci cemented together into a rod. This variety is found in

greatest abundance in very acute cases of phthisis with high fever and rapid disintegration of lung, and is often accompanied by another coccal or diplo-coccal organism, photos of which I show, occasionally in enormous quantities. The spit in which I have found this companion organism is generally tough, tenacious, transparent, frothy, and contains so much albumen that a very gentle heat coagulates it into a solid mass. In slower phthisis, when intercurrent inflammatory attacks happen, this coccal organism also appears often, and the bacilli of tubercle change into the beaded forms. In other cases of old phthisis, where the process is sleeping for the time, one meets in the sputum heaps of granules which, resisting decoloration by acids, I take to be ruins of bacilli. The entire bacilli perhaps stain only at their poles or in the centre, and their empty sheath is visible and wrinkled into folds very much like an ill-gartered stocking.

In staining for the bacillus I do not usually wait till the sedimentation of the more solid constituents of the expectoration takes place; time, or gentle heat as pointed out by Dr Philip, or the addition of weak alkaline solution and boiling, can bring this about; and one obtains, of course in the precipitate, a greater abundance of the bacilli, and when their numbers are small, all or any of those plans are advantageous. I generally, however, examine the fresh sputum without any preparatory treatment, and find what I look for if it is there at all. The staining properties of the bacillus remain unimpaired for very long; in one photo handed round it is seen after 31 months, and in spit four years old I find they stain as easily as they did when it was recent.

For merely diagnostic purposes the most trustworthy stains are two—the aniline-Fuchsine of the Koch-Ehrlich, and the carbol-Fuchsine of the Neelsen solution. The latter is the preferable, for it does not soon decompose, can therefore be prepared in quantity, and stains as intensely after months as it did at first, whereas the aniline water stains soon become turbid and useless. However, if one can be at the trouble to prepare the aniline water each examination, or at most after the lapse of a week or two, it is quite as trustworthy as the other. As to the microscopical requisites, I have to say that if the bacilli are numerous, and one possesses a certain amount of skill in recognising them, they may easily be found with a dry object-glass of 250 diameters, or even less; but by far the most satisfactory mode is to use some form of condenser, as Abbe's, for illumination, and an immersion object-glass, water, or, still better, oil. The latter can now be obtained very cheaply; and Mr Forgan has shown me a Leitz, one-twelfth of an inch, quite equal in its performance for diagnosis to the Zeiss one-twelfth, and at nearly one-fourth of the price of the latter.

If the bacilli are detected, their diagnostic significance is the highest possible; and they are to be found in every case of tubercular phthisis, and in it alone of lung diseases,—now numerous,

now scarcer, but appearing with a persistence that will not escape the notice of perseverance and a modicum of practical knowledge in the search. Therefore a negative result in the hands of one accustomed to the examination (and every one can easily acquire the necessary skill) is also of great value diagnostically. Naturally it is only where the breaking up of the original reaction products has begun and opened a way outwards for the bacillus that it will be found. In acute miliary tuberculosis it will not be seen at the beginning, and it is here and in all suspicious cases that a thorough quest for elastic tissue should be instituted; the two methods should go hand in hand.

As to prognosis it may be asked, Has the number or size, etc., of the bacilli in sputum any demonstrable connexion with the probable course of the phthisis? With the sole exception of the constant appearance of swarms of the beaded bacilli already alluded to, I would say most decidedly No. Prognostically we are in no better position with the bacilli than without them. The one thing certain, however, is that the lung disease is tubercular where they are present. The prognosis even of a tubercular process depends on many other factors than the number of bacilli,—the amount of fever, for instance, the sweats and diarrhoeas and cachexia, and the intensity of the destructive process in the lung, as measured by the amount of elastic fibre shredded off.

I shall now say a few words about it. Prior to the discovery of the tubercle bacillus, great reliance was placed on the presence of elastic fibres in the sputum as evidence of phthisis; they were considered pathognomonic of the disease, and even now I do not consider this view to be a very highly exaggerated one. In no case of phthisis will they be missed if sought for with sufficient patience. They are to be found very early in the disease, and in the most innocent looking sputum. They will be discovered before stethoscopic or percussion sounds, even when listened to by skilled ears and interpreted by skilled brains, give any other than uncertain information as to what is going on. That they precede the bacillus, mayhap for a considerable time, as daily examination of the expectoration of more than one early case has taught me, I can affirm with confidence. Therefore their diagnostic value is of a very high order, and should not be disparaged in favour of the tubercle bacillus, to which I do not think a first place should be conceded. The bacillus may be absent temporarily, not so the elastic tissue, which may be detected abundantly where bacilli are extremely few in number. For its discovery no elaborate microscopical appliances are necessary—a power of 150, or even 80 diameters is amply sufficient, and when seen the evidence of lung disintegration is unassailable.

It has been said that unless the tissue has an alveolar arrangement much stress need not be laid on its appearance in expectoration. This is a great mistake. I show photos, selected from many

in my possession, from cases of undoubted pulmonary phthisis, where this alveolar arrangement is very well seen, and others where the fibres are straight and in thick fasciculi, totally destitute of alveolation. No preparatory treatment of the sputum is needed for their demonstration. One, after a little experience, is able to select the dirty-white or reddish-yellow particles in which the fibres are likely to be found. A little morsel is pressed between the slide and cover-glass, and the examination proceeded with; or a drop of a 30 per cent. solution of caustic potass may be first added. As the fibres are not very compressible, they glide to the edge of the cover-glass, and will probably be seen there in greatest abundance. Different from the bacillus, it is not easy, to one accustomed to microscopic work, to mistake these fibres or to confound other things with them. One cannot say of tissue, however, that it is only present in the spit of phthisis—other destructive changes in the lungs cause its appearance; but if seen, the supposition is strong that this is the disease with which we have to do, and the supplementary search for the tubercle bacillus will complete the diagnosis. It is also as strongly resistant to putrefaction as the bacillus, and I have easily found both in a sputum sent from the antipodes. One of the photos handed round (they all have the magnification written on the back) shows how small a quantity is sufficient to attract the attention of a practised eye. Fenwick's plan of boiling with soda and dilution with water gives in the sediment a sort of epitome of the quantity of tissue contained in any sputum. I very seldom need to resort to this process, but I show two photographs of tissue after the expectoration has been treated in this manner.

In earnestly urging the importance of searching for elastic fibre in the very early stages of phthisis, and in all cases where such suspicion is entertained, I may have unduly magnified its diagnostic position, and may have failed to rehabilitate and restore its discovery to its former, and, as I believe, proper diagnostic rank. Many may dissent from my views; of course, one man's experience, however extensive it may be, is not all experience; but I can truly say that the microscope, by revealing to me the presence of curly fibre in a sputum has, on not a few occasions, enabled me to know that a phthisis had begun when, had I trusted to my ears alone, nothing so grave and serious would have been apprehended; and conversely, to assert with well-founded confidence that other cases were non-phthisical whose signs and symptoms pointed strongly to a contrary verdict.

In conclusion I may remark, what cannot fail to interest an audience of Edinburgh medical men, that it was the reading of the late Prof. John Hughes Bennet's *Introduction to Clinical Medicine*, published nearly forty years ago, which first led me to recognise the great importance of and satisfaction to be gained by a systematic examination of the sputa in suspicious cases of lung disease. It is

with the Oberhäuser microscope, recommended and furnished by him, that I have done, and continue to do, my chief work in that line of investigation; and it is with the No. 7 object-glass of Oberhäuser's system that the photographs of lung tissue exhibited this evening have been made.

II.—THE CLINICAL VALUE OF TEMPERATURE OBSERVATIONS IN SOME ACUTE AND CHRONIC DISEASES.

By J. O. AFFLECK, M.D., Physician to the Royal Infirmary, Edinburgh; Lecturer on Practice of Physic and on Clinical Medicine, Edinburgh Medical School; Examiner in Clinical Medicine in the University of Edinburgh.

(Read before the Medico-Chirurgical Society of Edinburgh, 7th March 1888.)

AMONG the many important additions to our means of accurate investigation of disease which have marked the past few decades, there is none which excels in value the clinical thermometer. By it we have been enabled to distinguish, from an early period in their development, not a few of the more serious and common of the acute maladies; to trace their course, and recognise deviations from their ordinary progress; to detect the advent of complications, to prognosticate their issues, and to concert measures for combating or effectually treating some of their most urgent symptoms—often to the saving of lives in imminent danger.

Those who are comparatively young in the profession regard this instrument as an essential part of the equipment of the physician, and are apt to wonder how their predecessors worked so well without its aid; while those who are old enough to have practised when no such thing existed will freely admit that by its possession they are placed in a far better position for obtaining correct and helpful information than they were before. Great, however, as has been the boon conferred alike upon physician and patient, it may be fairly questioned whether it has been utilized to the extent to which it is capable of serving its important purpose—whether we obtain from it all the information which as an instrument of scientific accuracy it is able to afford us. It is rather to be feared that most of us who carry about this little tool and readily acknowledge its value are but too apt to make use of it, if not in a perfunctory manner, at least with but an inadequate sense of its high clinical importance, and that thereby much information which might be turned to practical account is lost to us or never reaches us.

It is with this conviction, and because the subject is one which has occupied my mind in connexion with opportunities I have had or have taken for attentively observing temperatures in various diseases acute and chronic, and especially because I believe that the directing the notice of my younger brethren in particular to

this matter may prove useful to them in their practice, that I venture to occupy the time of the Society for a little to-night.

But at the very opening I must submit an explanation or apologetic preamble. In the first place, I must claim the indulgence of the senior members of the profession present for bringing forward, as I know I must do, facts which are not only not new to them, but regarding which they might perhaps be able to teach me much. It is the younger practitioners I have had specially in view on the present occasion, and my single desire is to bring under their notice observations I have made, and lessons I have learnt, which have been and constantly are helpful to me in practice; not asking their acceptance of these at my hand as absolute facts, but rather inviting their attention to them with the view of their subjecting them to proof when occasion offers, and of securing their interest in a clinical subject which, as already stated, there is reason to believe is but inadequately studied. Further, I must clearly guard myself against being supposed to give undue prominence to one symptom as an infallible means of recognising or tracing the progress of any disease. On the contrary, I hold most strongly that such a symptom as the temperature cannot be dissociated from other symptoms of equal or greater importance which together make up the portraiture of any malady, especially any acute malady. All that is contended for is that the course of the temperature in the case of not a few diseases is capable of indicating, with at least approximative accuracy, not only the chief events in their clinical history, but those departures from their wonted progress which may arise and influence in a marked degree the issue of the case. Into the subject of the physiology of the bodily temperature I cannot of course enter here, interesting and tempting though it be, nor even into its general pathology, much as I should have wished to have discussed questions relating to the morbid deviations both in the upward and downward directions from the normal heat. Both of these topics, and also those of the best methods of making temperature observations and the treatment of high temperatures, are excluded from the scope of this paper, which simply professes to record clinical observations made and deductions drawn which these appear to justify.

It will be sufficient, in the way of general remark, to recall to mind the recognised facts that any material alteration in the course of the bodily temperature bespeaks not merely the existence of some morbid process at work in the body, but implies in an especial manner a waste of tissue should such alteration be of the character of fever, or a lowering of vital action should the thermometer indicate a fall from the natural warmth. Both of these conditions also include in them serious disturbance of that process of heat regulation which is so full of interest in its adaptiveness, and involve likewise changes affecting the functions of vital organs as well as important modifications of secretory and nervous influences,

which are in constant operation in living bodies. There are probably instances of forms of disease where the *primum mobile* is none other than the disturbance of this heat function. Such is the view held by some as to the etiology of acute rheumatism, and in the case of those maladies which arise as the result of exposure to either extreme of the temperature of the atmosphere, such as sunstroke on the one hand, and death by cold on the other. Nevertheless, a heightened or a depressed temperature is in most cases symptomatic of some recognisable lesion or disease process already at work before such temperature-change arose, and its value as a symptom, particularly in acute maladies, consists largely in its quick responsiveness to morbid action, so that it oftentimes, for instance, precedes pain, dyspnoea, etc., in the onset of inflammatory maladies, and during their progress announces impending dangers, registers complications, and forecasts results, all with an accuracy which no subjective symptom can be trusted to reveal.

It is clear, however, that such observations, to be reliable, must be made with sufficient care and frequency to ensure their expressing, as far as possible, the continuity of the phenomena represented in any given case. Thus the conventional method of taking temperatures morning and evening, although convenient, is in many instances misleading, and fails to throw light upon conditions which a more frequent observation would have fully explained. It may be urged that such precise observations can only be satisfactorily carried out in hospital practice, and are impracticable otherwise. Now, however, when the clinical thermometer is finding its way into families for use by intelligent parents, nurses, and others, and when it is remembered that the method of temperature taking can be easily taught to such, any difficulty of the kind referred to can be readily surmounted.

In submitting the following statements as to the clinical value of temperature observations in certain diseases, it is right to explain that the facts narrated have been almost without exception derived from cases under my own care, chiefly in hospital work, and that the illustrative charts representing, for convenience, for the most part only morning and evening temperatures (although, in point of fact, in many of the cases four-hourly observations had been made), are the bases upon which the views to be indicated rest.

It is more than likely that many or most of these views have already been expressed by others, and if so, they will merely act the part of confirmatory evidence—which, however, is not wholly to be despised—while, on the other hand, it is possible that some points may be brought out which have hitherto attracted but little notice. In any case the observations have been made irrespective of any existing views or doctrines. It must always be remembered that exceptions, more or less numerous, to general statements such as those here set forth—even granting that these are in the main

correct—must be expected to be encountered, since individual peculiarities, complications, and other modifying influences enter here as they do in all other conditions of disease. If, however, taking all such circumstances into account, it is yet possible, as I believe it to be, to formulate conclusions which possess real value to the physician in practice, it seems worth while to make use of facts and observations which may contribute towards such a result.

In first directing attention to temperature teachings in ACUTE DISEASES, I shall have to restrict myself to a few of the more common and important ailments where the temperature is confessedly a symptom of high value diagnostically and otherwise.

Typhoid Fever is one of these, and the light which the thermometer is capable of shedding upon the whole clinical history of this disease entitles it to be first considered. The temperature phenomena of this fever, pursuing its normal course, are roughly represented by a crescentic curve, and its duration is given as about three weeks. (See Chart, Fig. 1.) The type of fever is on the whole remittent. As a matter of fact, however, typical examples of this disease are not very often met with, and in all the stages of its progress it will be found that departures from the described character of the temperature are very frequent and often very marked. Thus it occasionally happens that the onset of the symptoms is comparatively sudden, and that the acme of the temperature is attained early. Again, how often one sees the temperature of the second week continued through the third and even fourth, so that comparatively few cases run their course under twenty-eight days, and a large number exceed that. This will be the less surprising if we reflect that in this fever the temperature appears to stand in very close symptomatic relationship with the progress of the bowel lesion. In protracted cases of typhoid with high evening temperature, or with a temperature almost uniformly high, say over 103° F., we may infer with tolerable certainty not only the existence of extensive ulceration, but probably also new glands or areas of the mucous membrane continuing to be attacked. It has often occurred to me to observe this in post-mortem examinations of such cases, where all stages in the ulcerative process were represented in the affected portion of the intestine; and the relapse so frequently observed in this fever (of which the temperature so usefully admonishes us) is undoubtedly associated with the recrudescence of the local lesion in the bowels.

The relation of temperature and pulse in typhoid is very interesting, and in not a few instances renders valuable aid in diagnosis. In cases of moderate severity, or mild cases, where presumably there is little bowel lesion, or where this has not passed on to extensive ulceration, it will frequently, if not, indeed, usually be found that the pulse-rate is low compared with the height of the temperature. Thus I have often seen a temperature of 104° with a pulse not exceeding 80; and a case ran through all its stages

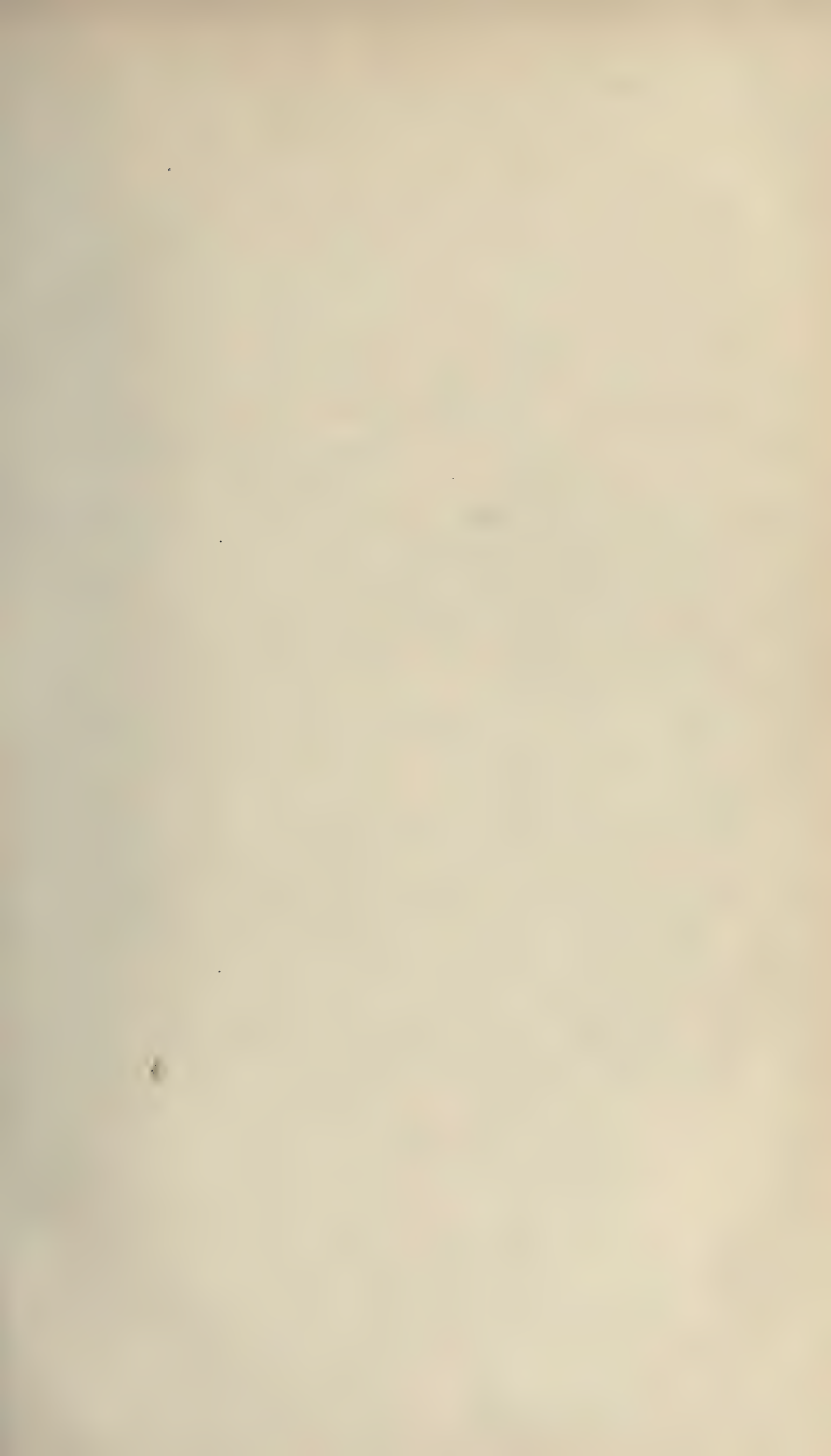
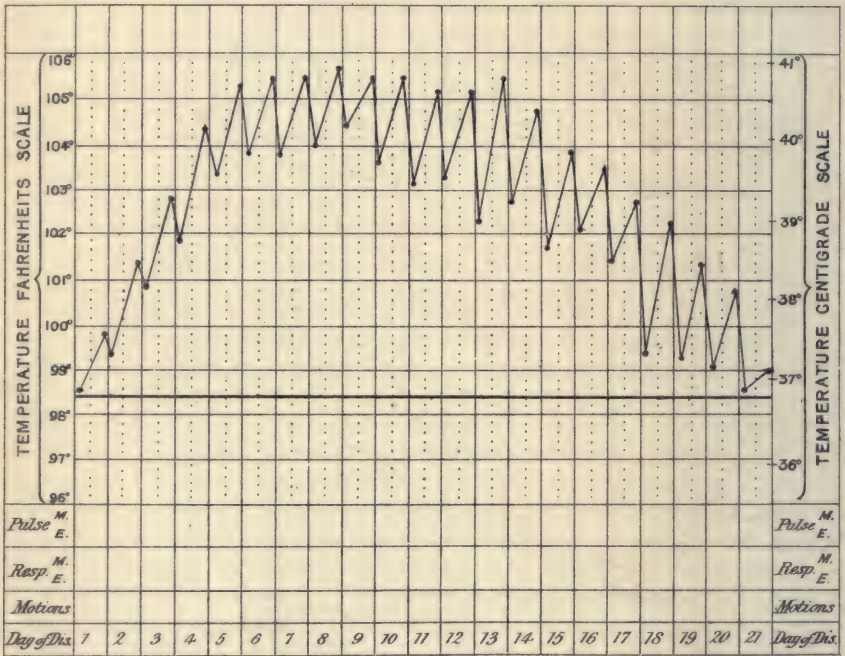


Fig. 1.

Name _____ Age _____ Typical Case _____ Disease Enteric Fever _____ Result _____



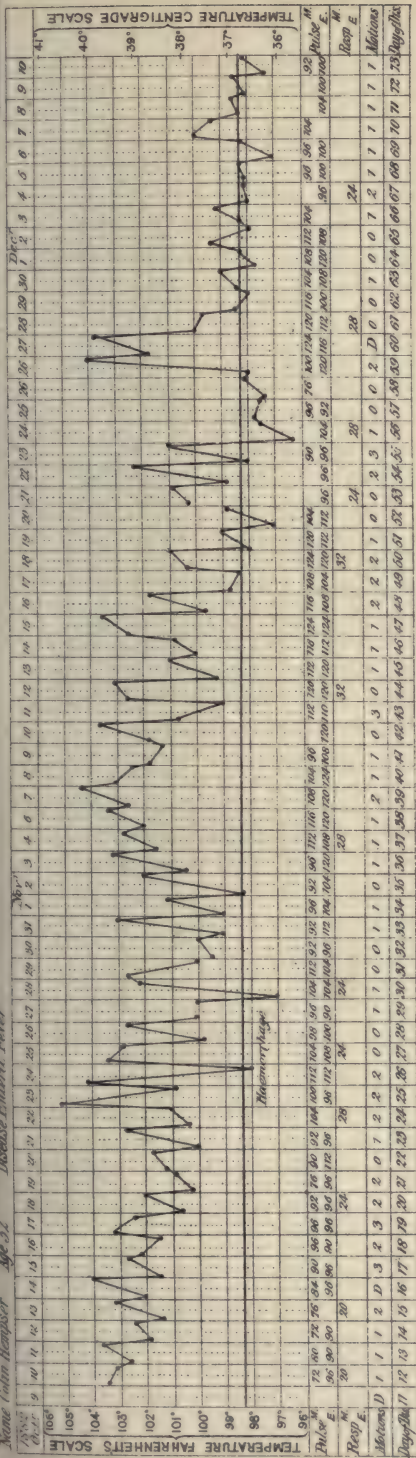
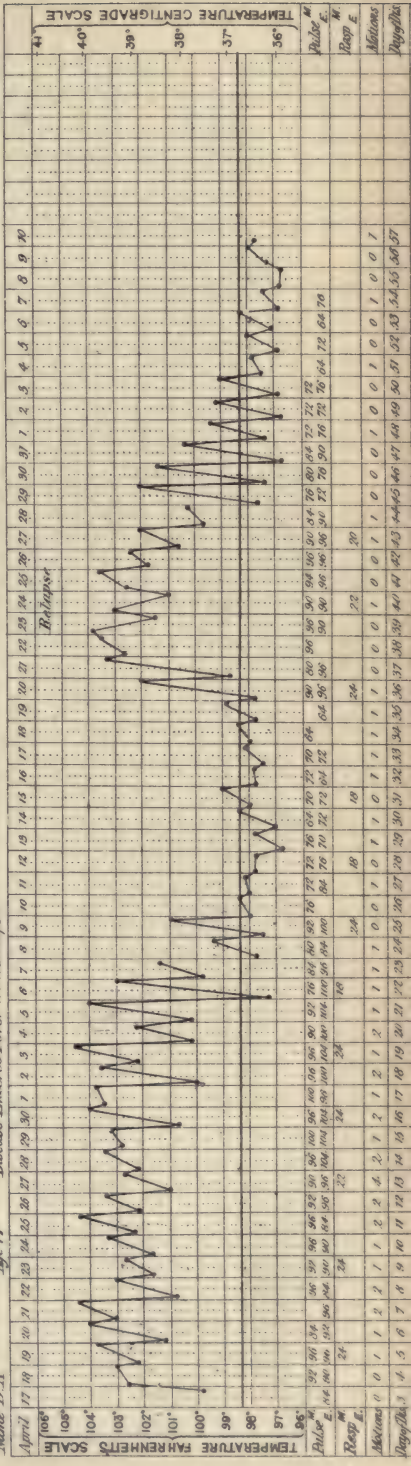


Fig. 3.



where the pulse-rate never attained 100. Such cases are mostly favourable, with comparatively quick recoveries. This slow pulse is often singularly useful in diagnosis in the early stage of typhoid, where the high temperature and other symptoms might suggest some other disease. Where the pulse is rapid all through, or, having been slow at first, becomes accelerated later on with persisting high temperature, the case, making allowance for nervous or constitutional irritability, is probably one of considerable severity. It is also to be noted that sometimes the pulse increases in rate after defervescence from heart irritability and weakness, a condition in which digitalis often proves of eminent service. This temperature and pulse relationship is noteworthy and important from the second week onwards, inasmuch as most of the complications so common in this fever are capable of ready recognition by a careful plan of temperature observation. Changes of sudden and alarming character may be brought about by a hyperpyretic movement of the temperature, of which the early discovery will give opportunity for interfering actively, and sometimes successfully. But even more frequently still may arise during this time one or other of those accidents to which the typhoid patient is exposed, and of which the temperature affords one means, although, of course, not the only one, of quick detection.

Thus a hæmorrhage may often make itself known by the rapid fall of the temperature, together with pallor of the face, sighing respiration, and small, quick pulse, even before the blood has appeared in the stools, and suggest the prompt administration of styptic remedies. (See Chart, Fig. 2.) No doubt a similar set of symptoms may result from perforation, and in many instances it is scarcely possible to distinguish between the two occurrences; yet in the latter the abdominal pain, vomiting, and supervention of peritonitis are specially marked. A condition occasionally arises resembling those just described, but owing a different cause from either, and yet equally dangerous, viz., where in a case pursuing its normal course the temperature suddenly drops from a high degree, and signs of sinking show themselves, without any evidence of local cause or even much disturbance in the patient's subjective sensations. This is simply collapse from heart failure, and it is early recognised by the descent of the temperature. Its detection in this way is all-important with the view of averting by prompt stimulation the otherwise frequently fatal result. Other complications, more or less common, owe their discovery to carefully observed temperature changes.

It is important to know that in any case of collapse, or other change where life is not quickly extinguished, the temperature generally rebounds upwards again, often to a higher point than that at which it stood before, and that from this time onwards the temperature range becomes more irregular and aside from the typical characters of the fever. (See Chart, Fig. 2.)

The thermometer indicates the departure of the fever, which is generally held to be at an end when the evening temperature over several days continues normal. But evening observations must be made from time to time during convalescence, especially after any change of diet, and in connexion with movement from bed, etc., for it is by the continuance of this practice mainly that the relapses so common and so important in this fever are detected. Into the causes of these relapses it is not possible at present to enter, but they may arise at a time when all risk of such things seemed at an end; and while no doubt they are usually of short duration and have a favourable issue, they may, on the other hand, extend over as long a period as the original attack, and they occasionally terminate fatally. (See Chart, Fig. 3.)

Certain anomalies of the temperature in typhoid are worthy of notice; for although wholly exceptional, they show that important as is the thermometer in the diagnosis of this disease, it would never do to trust to it alone. Thus there have been instances of typhoid, even in epidemic outbreaks, such as that described by Struve (*Berlin. Klin. Wochenschrift*, 1871, No. 30), as occurring in the German army at the siege of Paris in 1870, where the temperature throughout was at normal or subnormal point. In such instances it has been justly held that peculiar environments or conditions of life must have modified some at least of the features of the disease. That such is possible is, I think, illustrated in one of my cases of which a chart is before you (see Chart, Fig. 4), which occurred in the person of a night nurse in the Royal Infirmary, who was attacked with typhoid and treated in the Fever Hospital. It will be noticed that for many days the temperature showed a contrary course to that ordinarily manifested, inasmuch as there was a regular morning rise and an evening fall, but that ultimately the case assumed the normal character as regards temperature. This is not the only instance of this kind of inverse temperature in typhoid which I have observed, although, on the other hand, I have had night nurses under my care in whom the temperature pursued the ordinary course.

The co-existence or recent occurrence of any serious disease may also markedly modify the character of the temperature symptom of typhoid. In children the type of the fever is markedly remittent, with frequently very high evening temperatures; while in persons over middle life the height of the temperature is often not great, and so less to be trusted as the measure of the severity of a case.

The length of time a case of typhoid may sometimes continue is surprising. I possess charts showing a continuous febrile temperature for over 100 days before defervescence occurred, and where yet complete recovery resulted. No doubt long-continuing unhealed ulcers of the bowels explain such cases; but were it not for a careful observation of the temperature among other symp-

Fig. 4.

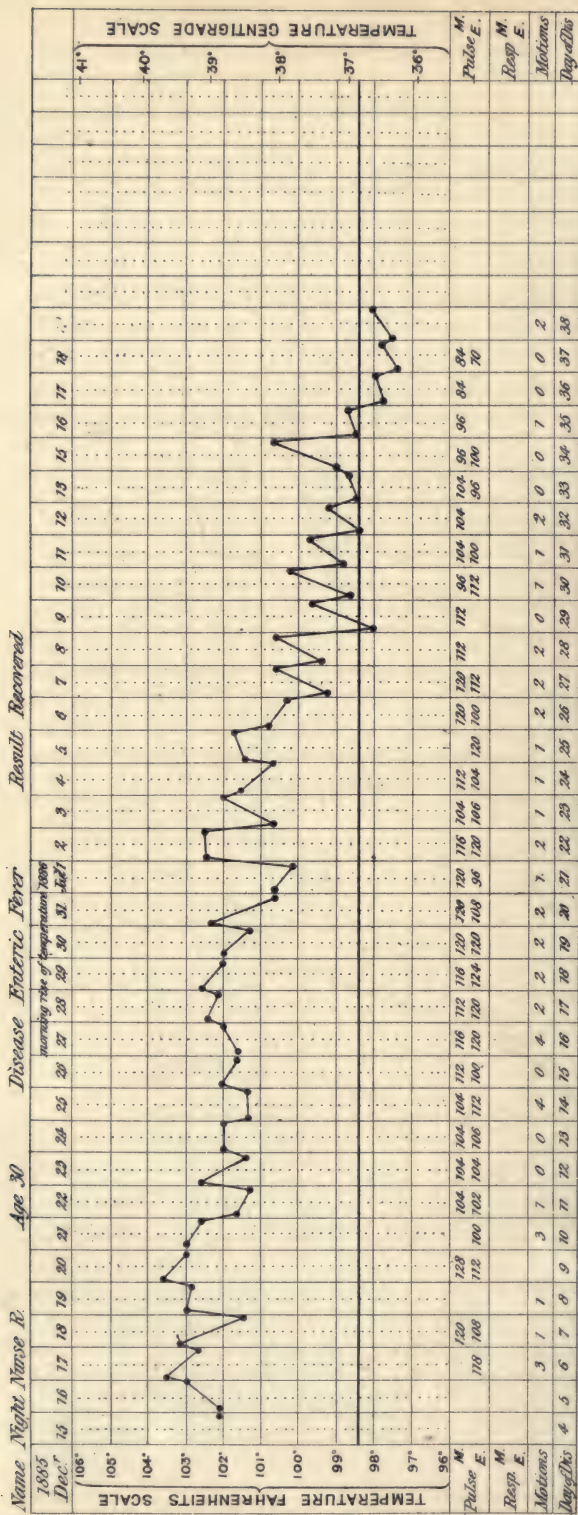


Fig. 5.

Name T.W.

Age 23

Disease Typhus Fever

Result Recovered

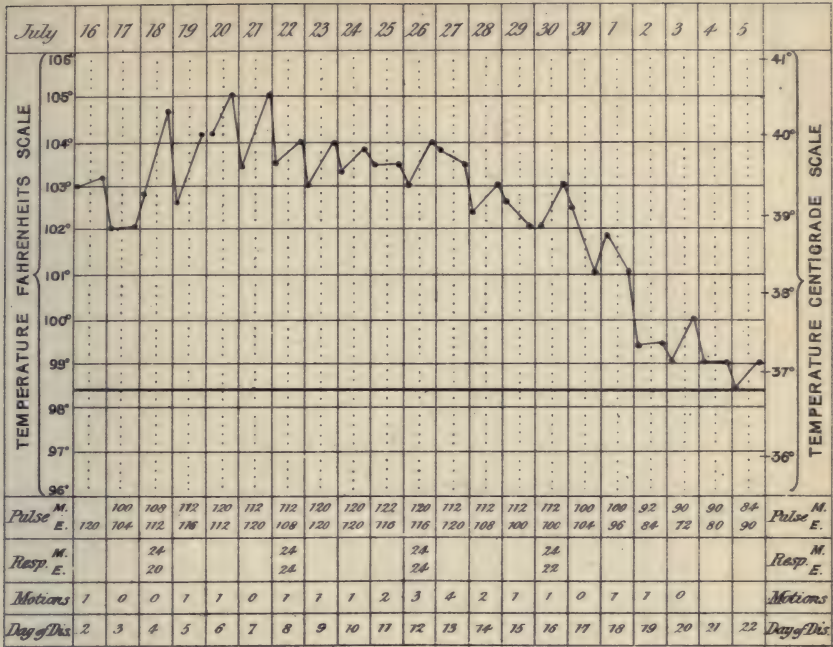


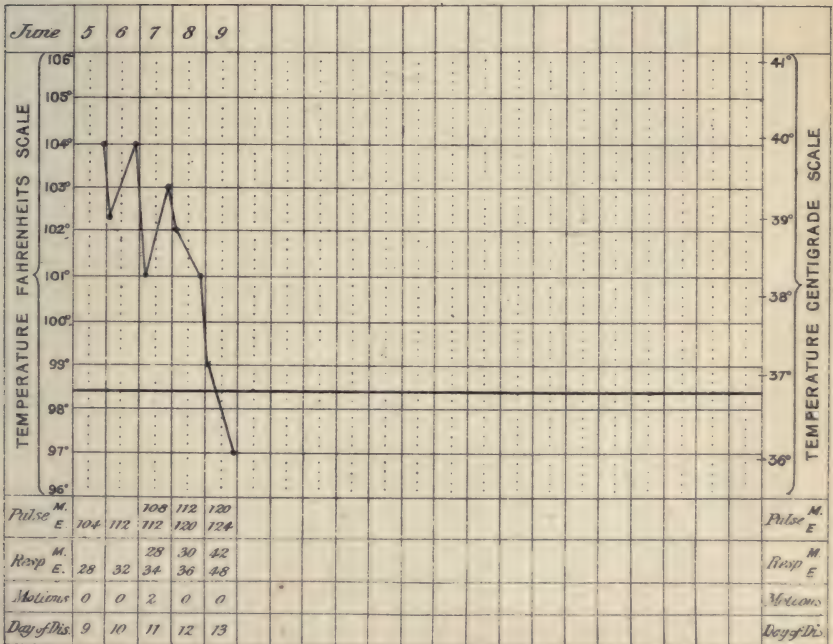
Fig. 6.

Name E.L.

Age 50

Disease Typhus Fever

Result, Died



toms, one might very easily be led to suspect that an error in diagnosis had been made at the first, and that the case was really one of phthisis.

It scarcely falls within the intention of this paper to refer to the effects of treatment upon the temperature of typhoid. One remark only I can make, namely, that while I have not had sufficient experience of the cold-bath treatment of the fever to state any facts of importance, I have used extensively antipyretic drugs, and have found that, while they doubtless possess much value in some cases by breaking in upon the continuity of a long-lasting and very high temperature, they appear to have no effect in shortening the duration of the disease, but, according to my experience, seem rather to tend to prolong its course. Moreover, great care is necessary in their administration, particularly in large doses (say 20 to 30 grains of quinine), which I have more than once seen induce a fall of temperature and of pulse so great and so rapid as to amount to dangerous collapse, necessitating the prompt resort to stimulants.

Upon the subject of the temperature in others of the fevers it is not my purpose at present to enter at any length.

Typhus is now happily a rare fever in our country, yet it has not been wholly stamped out from our great centres of population. There are many interesting points to be noted in the temperature of typhus—its rapid development, its comparatively short acme, and its fluctuations prior to its critical fall—but only one or two can be here alluded to. Thus I have rarely found it to fail that the temperature in favourable cases attained its highest point about the end of the first week—that is, when the eruption had come fully out—and that, as pointed out by Dr G. Buchanan, should any notable change upwards in the temperature take place in the course of the second week, we might regard the case as an anxious one. From the eleventh day onwards the temperature becomes irregular, and epicritical falls of short duration mark its progress, and, other things being equal, are of rather favourable prognosis. The final fall takes place sometimes about the thirteenth day, more commonly the fourteenth, but it may be later by several days, in which case the defervescence rather approximates to that by lysis. (See Chart, Fig. 5.) It is extremely important in such a fever as this, just as we shall afterwards see in the case of pneumonia, to understand what is involved in a favourable crisis. Were we to suppose that the fall to normal of the temperature was all, we should be greatly mistaken. It tells of the crisis, but it does not by itself constitute the crisis. Unless every other disturbed function, notably that of the circulation, improves in proportion, we have a false or imperfect crisis, a condition fraught with danger. It is to be remembered, too, that the crisis may kill the patient (see Chart, Fig. 6), the shock of sudden cessation of febrile action being too great for the recoil of the system. The time of the crisis is, therefore,—in

which the thermometer is an helpful informant,—regarded with concern by every intelligent physician.

In the case of the *Exanthemata* the temperature, while yielding important information for many purposes, is less to be trusted to than is the case in the continued fevers. Indeed, in some points it is apt to lead us astray. Thus it is not always, although it is sometimes, a measure of the severity of a case; and examples of malignant forms of this class of fevers, such as measles, scarlet fever, smallpox, etc., may be often enough encountered where the temperature is by no means high. Again, such complications as post-scarlatinal nephritis may arise without any information from the thermometer. Notwithstanding we may yet in most cases profitably regard the temperature, and we shall find that it will repay our attention. In *Smallpox* it will help us to distinguish between the modified and the unmodified disease, and in general will give us a good idea of the severity of a case, and especially of the super-vention of the more common and serious of the complications. Further, it may usefully guide us in treatment. During the epidemic in 1871 I encountered in a young girl, M. B., aged 14, a case which threatened to prove one of malignant type, in so far as that the temperature registered over 107° ; there was profound unconsciousness with involuntary evacuations, a feeble and failing pulse, and a slight purplish appearance, merely suggestive of a commencing rash, upon the brow. I applied a wet pack for over an hour, when the whole aspect of the case became changed; consciousness returned, the temperature fell four degrees, a copious semi-confluent rash appeared, and the patient went through a severe attack, but quite recovered.

In the case of *Scarlet Fever* the temperature occasionally assumes at the outset a hyperpyretic point, with, it may be, urgent head symptoms. This, although alarming, is often of but short duration, and may in many cases be successfully dealt with by the wet pack. Again, it will often be noticed that there exists a certain relationship between the rash and the temperature, although too much cannot be founded upon this. It is rare, for instance, to see a very copious rash where the temperature is not considerably raised; but, on the other hand, the converse does not hold, since a very high, even hyperpyretic, temperature may be met with where little or no rash at all can be made out. In an ordinary average case the temperature has, as a rule, subsided by lysis at about the end of the first week. Where this has not occurred, but where it continues high, we shall probably find that the case is one of scarlatina anginosa, or that some complication—rheumatic, cardiac, renal, or other—has arisen.

In *Measles* the temperature suddenly rises with the onset of catarrhal symptoms, slightly remits before the rash appears, but quickly rises again with the eruption, which it then accompanies till the latter has attained its maximum, when it subsides with

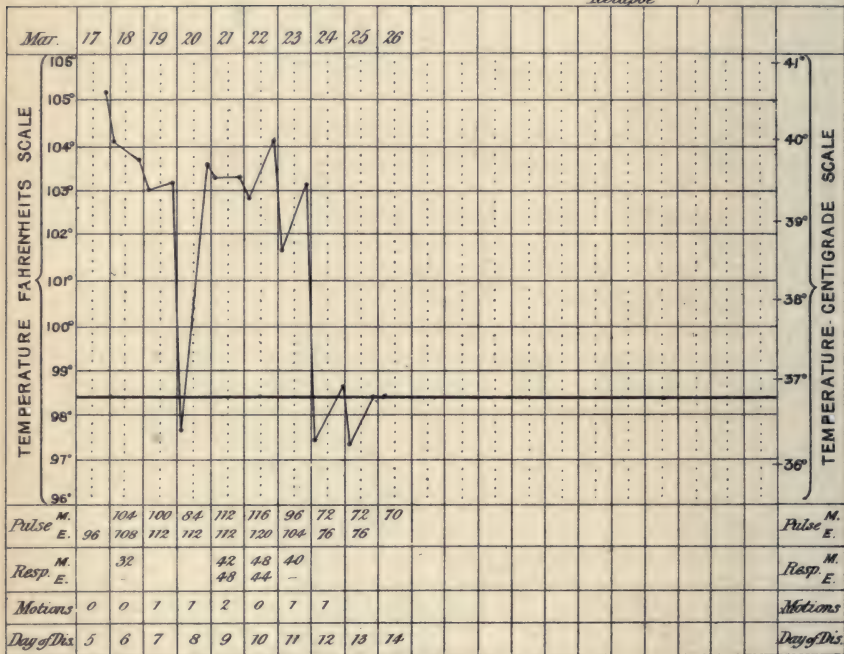


Fig. 7.

Name J. F.

Age 23

Disease	Pneumonia with Relapse	Result	Recovered
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something like a crisis. Here the thermometer assuredly proves of value, for it will be found that the failure of the temperature to depart with the rash will almost certainly betoken the onset of a complication, most probably that of bronchitis or pneumonia.

Passing now to consider other acute maladies in which temperature observations furnish us with highly important information, I shall ask your attention briefly to the very common ailment *Croupous Pneumonia*, a disease which we all know is now regarded by not a few as a specific fever, and which certainly differs from every other inflammation in its remarkable self limitation and in many other ways. Doubtless cases differ in their whole clinical history, as we know they do in their severity, but speaking generally, the commencement is well marked with rigors and the rapid access of fever of high degree, the acme of which is soon reached and which is of the continued type, with such slight daily fluctuations as are consistent with this character of febrile action. All through an attack the thermometer teaches us much. Thus at the very onset temperature observation may suggest this disease even before any other symptom, and certainly before any physical sign has as yet with any distinctness given the hint. A rigor with sudden rise of temperature, vomiting, together with, it may be, uneasiness or pain in the side and slight acceleration of the rate of respiration, being more likely to be interpreted correctly by a diagnosis of pneumonia than in any other way. True, cases do occasionally begin, and sometimes those, too, which prove to be the worst cases, where the invasion is so insidious and indistinct, that the temperature is valueless in announcing them, but such instances are certainly exceptional. The progress during the week or so which marks the fastigium or height of the disease, offers some interesting and important facts which the temperature rather strongly expresses. Thus cases are sometimes met with where the whole symptoms suddenly abate after continuing for two or three days, and the disease, the presence of which was made out not simply by temperature observation, but even by recognisable physical signs, appears to abort. Again there are not unfrequently observed *pseudo-crises* (see Chart, Fig. 7), where after a few days the temperature falls and the pulse also, while the breathing becomes easier, and it may be that warm perspiration occurs, but this is soon followed by a reaccession of all the febrile phenomena and other acute symptoms. This change, which is in a certain sense a relapse, may not unfrequently be found to be connected with either an extension of the disease in the affected lung, or an invasion of the previously healthy one.

In most cases, however, there occurs a crisis of well-marked character in which the behaviour of the temperature is very noteworthy. A *perturbatio critica* sometimes precedes it, and the temperature may for a brief period attain a point higher than at any previous stage of the illness. This, however, is speedily

followed by the swift fall, which may amount to a descent to normal or subnormal of a temperature which a few hours before stood at 104° or 105° .

It is extremely interesting to notice the crisis in this disease, and the manner in which it declares itself. In favourable cases the marked defervescence, and the accompanying critical events, viz., perspiration, fall of pulse, and relief to the breathing, are very striking, and all the more so that the physical examination of the lung shows as yet really no change; and they must all be present before we can say that a real crisis has come. The best form in which it can come is that represented in the two charts (see Chart, Fig. 8) taken in a case of pneumonia which has just left my ward in the Royal Infirmary, recovered. One of these charts (with morning and evening observations) shows the usual fluctuations of temperature during the height of the disease, and a sharp fall on the 7th day; the other shows the temperature in the same case taken throughout every four hours, and gives an analysis of the course of the fall during the crisis, from which it will be seen how gradually and safely for the patient the change took place, and how pulse and respirations coincided in the improvement. As was indicated already in referring to typhus, there are dangers manifold in the crisis of a pneumonia. Death may take place at the very time the critical change is progressing, and the temperature then may either sink below normal or attain rapidly a high degree. Of evil prognosis, too, is the not very infrequent occurrence of marked defervescence at the usual time without a corresponding fall, but perhaps rather an acceleration of the pulse, for it speaks of heart exhaustion, and sudden collapse is to be apprehended. So, too, should the pulse at this time, particularly in aged people, become suddenly and abnormally slow and irregular. Treatment may, however, do much to lessen danger.

Such symptoms may no doubt occur at any period of the disease, but they are certainly more common at the crisis. Should any complication or untoward event arise during the course of the attack, it may have the effect of postponing the crisis for some days beyond the ordinary time. When no fall of temperature occurs at the expected period, but fever continues and the lung condition shows no improvement, there is reason to fear the occurrence of purulent infiltration; some destructive change in the inflamed area; or the co-existence of catarrhal pneumonia, which, as Wunderlich shows, may be allied with croupous. A pneumonia in which continuous sweating accompanies a continuous high temperature is often of rather evil prognosis, as is also a pneumonia with very marked febrile phenomena, but without expectoration. In pneumonia of the apex the temperature usually continues high for fully a longer period than in basic pneumonia, and defervescence is apt to be more in the way of lysis.

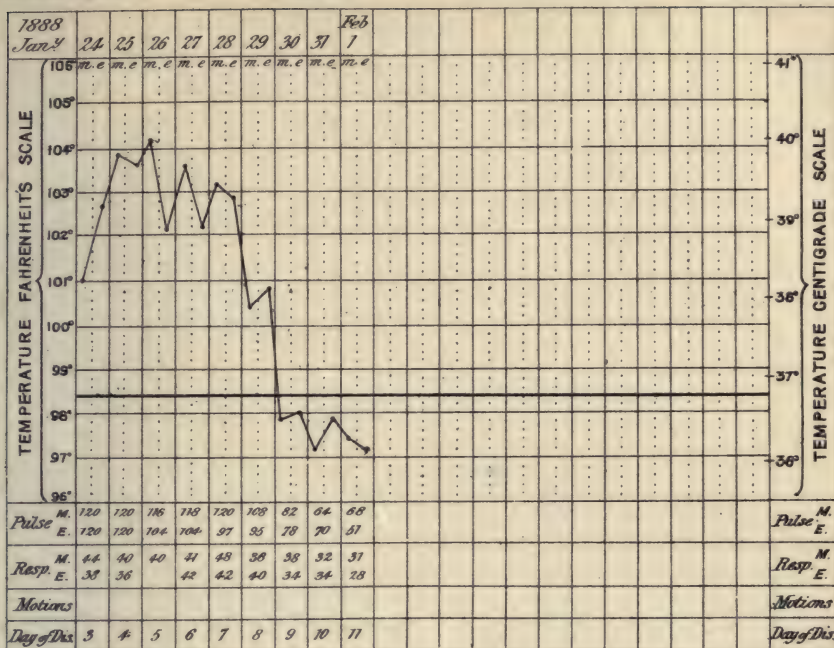
Name	M.H.	Age	32	Disease	Pneumonia	Result	Recovered
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Name M.H.

Age 32

Disease Pneumonia

Result Recovered



Name M.H.

Age 32

Disease Pneumonia

Result Recovered

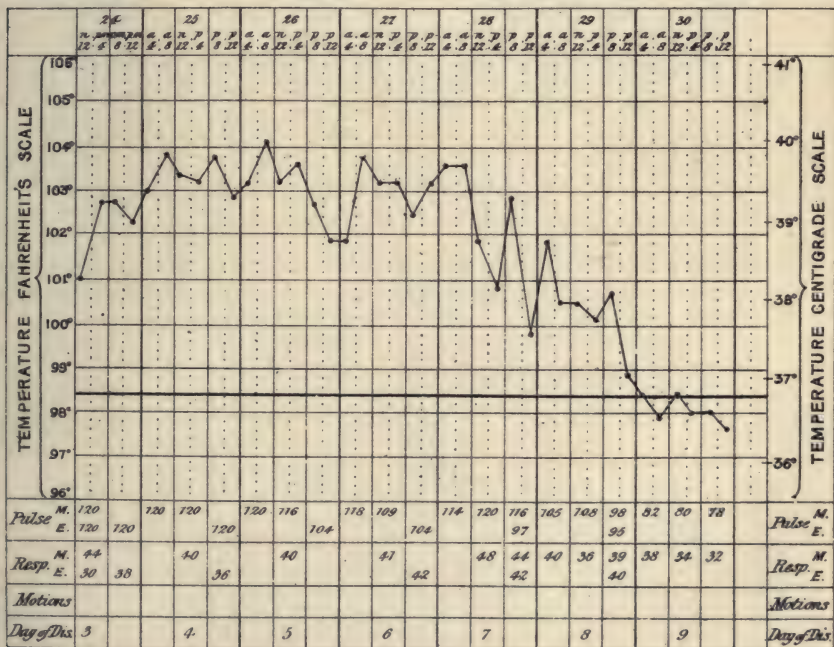


Fig. 9.

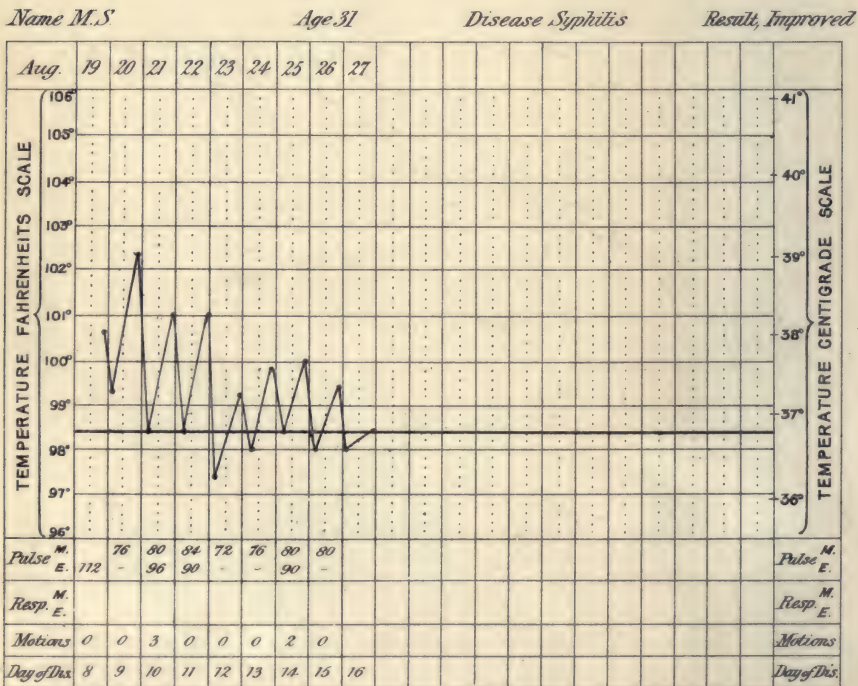
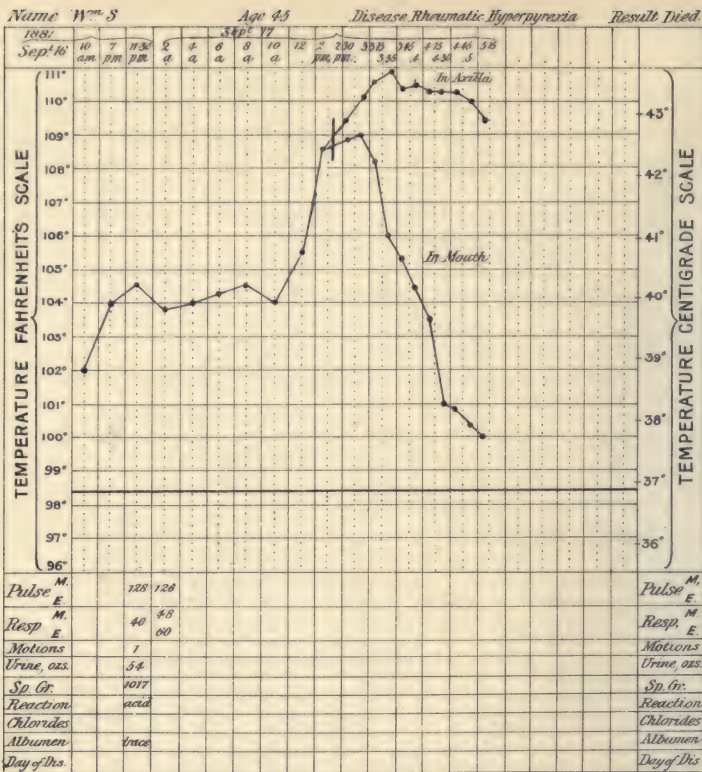


Fig. 10.

Temperature observations are of much value in *Acute Rheumatism* in reference more especially to the complications of that disease. The fever in an ordinary case is not as a rule high, and usually ranges between 101° and 103° . Its invasion is by no means so sudden as is the case in pneumonia, and its highest point is gradually attained during the first week, there being slight evening exacerbations and morning remissions. One remarkable feature of the fever is its persistence notwithstanding abundant diaphoresis. Further, while it does not appear to bear any distinct relation to the number of joints affected, and is now happily to a considerable extent under the control of remedies, it yields information of the most important kind, and quickly points out what in reality are the main dangers in this disease, namely, heart inflammation and hyperpyrexia. In any case, pursuing its ordinary course, should the temperature make a distinct move upwards, and at the same time the pulse become markedly quickened and feeble, we may suspect endocarditis even before we may be able to prove its occurrence by physical examination.

Hyperpyrexia is probably more common in this disease than in any other—a fact which suggests the careful observation of the temperature while any febrile phenomena continue during its progress. It may arise in what appears to be an ordinary and favourable case, and, while it seems to be fully more common in first attacks, also in persons who have been intemperate, and may be connected with the coexistence of acute pneumonia, it is frequently met with altogether apart from these conditions. Its onset is sometimes announced by the sudden cessation of perspiration, and by the supervention of restlessness, delirium, and other head symptoms. But the most striking thing is the rapid rise of temperature. When the hyperpyretic point is reached the whole heat regulating mechanism seems to be unhinged, and there appears to be an enormous heat production until an amount is reached incompatible with life. In the course of an hour or little more the temperature will move from 101° up to 108° or 110° , and unless the cold bath is quickly resorted to—and often in spite of it—death takes place from heart exhaustion. (See Chart, Fig. 9.) All I have observed of this complication leads me to the opinion that the occurrence of a temperature, particularly a morning temperature of 104° , gives ground for anxiously watching such a case, and directing the temperature to be taken every half hour at least; while, when it attains 105° , and appears to be still rising, the cold bath ought to be ready at hand for use in the event of the temperature reaching 106° .

There are several other forms of acute disease in which temperature observation teaches important lessons, but a mere mention of one or two of these can only now be made.

The temperature in cases of *Acute Tuberculosis*, including also

acute phthisis and catarrhal pneumonia, is a valuable guide in serving to distinguish between these diseases and typhoid, to which in many points they bear no small resemblance. No doubt tubercular disease may occasionally be developed without affecting the temperature, but this must be regarded as exceptional. The type of the fever here is for the most part irregularly remittent (hectic type), and is accompanied with pseudo-crises, one or more in the twenty-four hours, which are attended with perspirations. Moreover, the breathing and pulse are usually accelerated to a greater degree than in the average case of typhoid.

Temperature readings may be of marked service in *Acute Alcoholism*, where in general it is subnormal; and any marked elevation is suggestive of some existing complication, which is not unfrequently in the form of pneumonia.

In *Syphilis*, at the onset of the secondary phenomena, there is often a considerable degree of fever; and when in charge of Fever Wards in the Edinburgh Royal Infirmary, cases of this kind came occasionally under my observation from their having been sent to hospital as probably continued fever. (See Chart, Fig. 10.)

Had time permitted I should have here referred to those extreme heights to which the temperature occasionally attains before death in many cases of disease and injury (often head affections), to which the terms pro-agonistic or pro-agonic are applied, and showed how essentially they differ from what is to be regarded as true hyperpyrexia, and how vain it is to treat them as such.

With respect to the temperature in CHRONIC DISEASES, there are many points of interest which, had time allowed, might have been presented as tending to show that while, of course, the temperature yields less precise information than is the case in acute diseases, yet thermometric observations might with advantage be more commonly made than usually are. The subject of chronic fever present in some diseases—*e.g.*, phthisis—the tolerance of it, and its results, are topics of much clinical interest; but all that can be undertaken on the present occasion is the mere mention of some examples of chronic disease, showing temperature changes which appear to possess some significance.

In two cases of *Anæmia* of pernicious type, which had been under my care during the past two years, in which they both showed a remarkable diminution in the number of blood globules (750,000 and 850,000 per cm. respectively), and in many other respects resembled each other,—in this also that they both recovered, one of them having been recently shown at a meeting of this Society,—there existed on admission, and for a considerable period thereafter, a notable daily elevation of temperature, which ranged from 100° to 101°·5. A permanent fall to normal of the temperature coincided with a distinct increase in the number of blood-corpuscles.

In a case of *Myxœdema*—photographs of which were lately exhibited to this Society—a prolonged and careful series of temperature observations were made at intervals of four hours, extending over upwards of three months; and in no instance did the temperature rise to the normal height, but was persistently between 97° and 98° —a point of exceeding interest in reference to the observations of Mr Victor Horsley upon animals rendered artificially myxœdematous by ablation of their thyroid.

In almost all cases of *Diabetics* under my care in hospital the temperature has shown a subnormal point.

In a case of *Infantile Spinal Paralysis* recently under treatment in my ward, which had lasted for many months, and was thus to be regarded as a chronic disease, temperature observations on the limbs, which, however well wrapped up, had always a dead, cold feeling, showed the following readings:—

Body.	Normal.
Thighs,	87°
Legs,	78°
Feet,	75°

Had the case continued under my care, I should have resorted to regular temperature observations, and any improvement in this respect might reasonably be presumed to indicate—with other things—a prospect of amendment, since the lowering of the heat in the limb is doubtless due, in no small measure, to the suspension of nerve influence.

In bringing these remarks to a close, I trust that, without claiming for this symptom of temperature in disease too much importance, some at least of the facts which have been stated may justify the view expressed at the outset of this paper, that in many maladies thermometric observations carefully made will yield the physician much trustworthy information alike in diagnosis, prognosis, and treatment.

III.—A CASE OF MULTIPLE NEURITIS IN A WOMAN, OF COMBINED SYPHILITIC AND ALCOHOLIC ORIGIN; TREATMENT BY ELECTRO-MASSAGE; COMPLETE RECOVERY.

By ANDREW SMART, M.D., F.R.C.P.E.

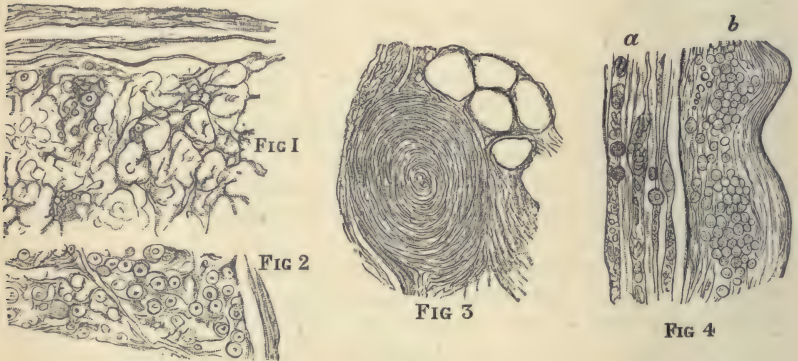
(Read before the Medico-Chirurgical Society of Edinburgh,¹ 2nd May 1888.)

THE disease to which the term multiple neuritis is now applied was first, though imperfectly, described by Duménil in 1864. But the subject dropped out of notice until 1876, when Eichhorst reported a case under the name of "Acute Progressive Neuritis,"

¹ It also formed the subject of a clinical lecture in the Royal Infirmary in February 1888.

in which he found peripheral nerve degeneration without change in the brain or spinal cord. Three years afterwards, Eisenlohr and Joffroy brought forward fresh cases of the disease, followed in 1880 by contributions by Leyden, and in the following year by Lancereaux and Grainger Stewart. The last-named observer reported three well-marked cases of the disease, in one of which the autopsy showed the nerves only to be diseased, the brain and spinal cord being almost healthy.

The pathological changes found in the diseased nerves consisted in a more or less complete atrophy of the nerve fibres, with thickening of the perineurium, and accumulation of fat cells between the bundles; together, as pointed out by Leyden, the deposit of pigment around the bloodvessels, which, as he thinks, gives evidence of an inflammatory hæmorrhagic condition of the tissue between the nerve fibres, which by compression leads to their atrophy. (See Drawings). The disease described by each of these



- FIG. 1.—Transverse section of sciatic nerve in multiple neuritis (alcoholic), showing acute degeneration of the nerve fibres (parenchymatous degeneration). The area of the atrophied nerve fibres is occupied by tracks of branching connective tissue enclosing the space which had been occupied by nerve fibres, and in some of which healthy fibres still remain.
- FIG. 2.—Section from a less affected bundle from musculo-spiral nerve, showing a less complete stage of degeneration.
- FIG. 3.—A fasciculus from median nerve in which the concentric growth of the fibrous tissue has invaded the whole area of fasciculus, resulting in complete destruction of the nerve fibres. (Buzzard modified.)
- FIG. 4.—Longitudinal section in multiple neuritis, showing degeneration of nerve fibres,—(a) the myelin broken up into masses, globules, and granules, with (b) accumulation of leucocytes in nerve sheath. (After Leyden, modified.)

observers is characterized by a combined group of associated symptoms occurring together or in quick succession, which, until demonstrated to the contrary by the clinical facts and post-mortem evidence referred to, were believed to originate in spinal disease. These symptoms, in many respects closely resembling others induced by disease of the brain or cord, or both, are now becoming better known as pathognomonic of certain degenerative alterations occurring in the peripheral nerves, which, if unarrested, tend to the complete destruction of their functions. This disease is one

occurring mostly in women between the ages of 30 and 50 years.

Although the correct pathology of this disease only began, as I have just said, to be appreciated after the publication of Duménil's observations in 1864, yet so early as 1822, Dr Jackson of Boston drew attention to certain disorders of the nervous system which he connected with the drinking habit as their cause, having symptoms identical with those which we now recognise as distinctive of multiple neuritis. Jackson's views appear to have been lost sight of until 1849, when they were revived by Huss of Stockholm. But it was not until the publication of Dr Wilk's cases of drunkard's paralysis that professional attention was fully directed to the existence of a disease which could be properly designated "alcoholic paralysis." The cases of this disease, which have since been reported by careful observers of this and other countries, tend to corroborate the accuracy of previous observations alike as to the etiology and pathology of the disease. I have brought forward the present case, which I believe to be primarily of syphilitic origin, although doubtless aggravated by the patient's intemperate habits, partly as a contribution in support of these views, and partly to recall attention to the operation of other causes in the production of those degenerations of peripheral nerves which present their effects to us in the shape of a definite palsy. It is probable, if not positively certain, that, with a growing and more intimate knowledge of many neuroses whose pathology is still but imperfectly made out, we shall have to admit the potent agency of many other causes besides those of alcohol and syphilis in bringing about these degenerations. Is, for instance, the palsy of lead poisoning not a multiple neuritis? And may the same not be said of every kind of metallic poisoning? Is the paralysis of diphtheria not a peripheral nerve degeneration due to the specific blood poisoning of the disease? Again, may not the nerve disorders associated with advancing mellitic diabetes be viewed in the same light? the glucose in that case acting as the toxic agent. The complete loss of the knee-jerk occurring in the advanced stage of that malady is very suggestive, as the absence of the knee-jerk is the most constant and reliable diagnostic mark of a multiple neuritis. These instances are only named as suggesting a much wider range of possible causation in operation than we have hitherto accustomed ourselves to suppose; and as tending to show that a multiple degenerative peripheral neuritis may be the underlying pathological condition common to a large variety of variously modified disorders, and by a reference to which the neurotic symptoms developed during their course can best be explained.

The patient whose case is now under consideration was admitted to Ward VI. of the Royal Infirmary of Edinburgh in November 1887.¹

¹ W. A. Turner, M.B., C.M., acting as Resident Physician.

Previous History.—She is a widow in her thirty-seventh year, her husband having died a few months prior to her admission. She had been married about eleven years, and during that period had borne five children, had two miscarriages, and during the whole of her married life had suffered from menorrhagia.

Four of the five children died in infancy, the survivor, a boy of ten years, being in delicate health.

On account of the frequency and continuance of her menorrhagia she was often confined to bed. On getting out of bed on one of these occasions, her husband having died during the interval of her seclusion, she experienced some difficulty in walking, and having on the same day visited the cemetery in which her husband was interred, whither she had driven, she on leaving the cab fell to the ground, then feeling unable to walk or stand. On reaching her house she again took to bed, where, with only occasional attempts to go about the house, she remained until brought to the Infirmary. She explains that, besides the difficulty of walking, two months before her admission she began to experience feelings of cold and numbness, with tingling and pricking sensations in the feet and legs, and later on pains of a darting and burning character which occasioned her much distress—the pains being aggravated by recurring exacerbations; and she stated that, shortly before going to the Infirmary, similar sensations had come into the hands and fingers, although without pain.

Her Condition on Admission.—She cannot walk or stand, even with the assistance of others, and when any attempt is made to put her on her feet she makes a great outcry with tears. Her decubitus in bed is on the side with the knees drawn up, the feet rigidly extended, and the toes curved under the soles. By much and apparently painful effort she extends the legs, but is unable to flex the feet or point the toes. Slight pressure over the tibial nerves, especially the anterior, elicited the expression of acute pain. The cutaneous hyperæsthesia over area of distribution of anterior tibial nerve is well marked, but away from that area it becomes irregular and not readily definable. Any attempt, however slight, at passive movement of the legs is attended by apparently excruciating myalgic pain. This is markedly so when the calf muscles are handled. Her dread of pain obliged us repeatedly to defer our examination, and kept the patient persistently in the same position in bed. Owing to her perturbation when we approached her we could not get the patient sufficiently to fix her attention so as to be able to localize sensory impressions, and the cutaneous tactile sensibility could not on that account accurately be ascertained.

The muscles of the legs are not more atrophied than would be accounted for by their disuse for two or three months. There is no œdema. Plantar sensibility is deficient, but when, at a later

stage, she was put upon her feet she said that she felt the ground perfectly under them; but if, for an instant, left unsupported in that position she sinks to the floor. Knee and ankle-jerk are abolished. The sphincters are not impaired, and the bladder and rectum are acting normally. The electrical test elicited a feeble "reaction of degeneration." Her mental condition is marked by defect of memory, extreme emotional depression, and incapacity for endurance. There has been no delirium, delusions, or hallucinations. Her sleep is fairly good, and she is not disturbed by apprehensive dreams.

She now complains of coldness of the hands, with pin and needle sensations. She is always rubbing them. The mobility and tactile sensibility of the hands are defective, and she is becoming awkward in using them. There is commencing wrist-drop; vision normal; pupils fairly responsive to light and accommodation; no headache; no strabismus; absent myosis and nystagmus.



FIG. 5.—Usual attitude of the hands and feet, showing paralysis of extensors of the wrist and flexors of the ankles.

Treatment and Progress.—I was not, at the time it became necessary for me to consider the treatment to be adopted, in possession of that part of the patient's history which afterwards disposed me to suspect a syphilitic cachexia. The knowledge of a prior history of that character, although not materially affecting the course of the disease, would have doubtless determined me to adopt a decidedly specific line of treatment. The patient's unreliable memory as to her antecedents, and the absence of trustworthy information from an extraneous source, put me at a disadvantage. It was not, in fact,

until her recovery was assured that I became aware from an authentic quarter that my conjecture as to syphilis was well founded. The treatment adopted, however, proved successful beyond expectation.

The patient was deprived of all stimulants, even to tea and coffee. Her condition of anæmia indicated the need of iron, which was given as the valerianate with strychnia and arsenic. But the remedy from which I expected most lay in the application of massage—in the first instance by gentle hand friction suited to her capacity to bear it. This she at first resisted, as she did every method of treatment, but was reconciled by early and continuously experiencing the benefit derived from it.

At a further stage I combined electrolysis with massage by means of a metallic roller which I had made to be readily adjusted to any battery as an electrode. By this arrangement the roller could be applied with any degree of pressure, and freely moved over the paralyzed limbs, thus combining at the same moment the faradic current with the massaging process. This process daily became more agreeable to the patient, discrimination being exercised as to the strength of the current and the amount of pressure applied. Improvement from the beginning of treatment was unequivocal and steadily progressive, and only retarded by the necessarily slow recuperation of nerves, which had doubtless undergone partial structural changes. An added delay arose from a degree of contracture of the calf muscles induced by the loss of the normal antagonism derived from their opponent muscles of the front of the legs.

In consequence of these drawbacks the patient's earlier efforts at locomotion were laborious, and characterized by fixity of the ankles and curving under of the toes. Progression, consequently, for a long time was effected by a shambling, shuffling movement on the outer edge of the feet, which were kept widely apart, her eyes being apprehensively fixed on the ground. She had, of course, to be assisted by the nurse. Her movements were not at any time inco-ordinate. This absence from ataxia is important, as contradicting multiple neuritis of the female from the alcoholic ataxia occasionally met with in the male, and as also differentiating this form of paralysis from paraplegias of spinal origin.

After three months' treatment, carried on under great discouragement, the patient so well recovered the use of her legs as to be able to walk unassisted the whole length of the long corridor, the power to flex the feet and extend the toes gradually returning. She had two months previously recovered the use of her hands. After three weeks more, passed at the Convalescent Hospital, she returned to her home, where I afterwards saw her attending to her household work in still improving health.

I have just spoken of a distinction in the diagnosis between the paralysis of a peripheral neuritis and that of a spinal paraplegia.

It might be useful to extend this comparison of symptoms to some other diseases in which the symptoms are apt to be confused in diagnosis with those of multiple neuritis.

1. In the first place, it is necessary to distinguish it from hysterical paraplegia. In that case it is scarcely needful to do more than to remember that the knee-jerk in multiple neuritis is always absent, but in purely hysterical conditions it is always present.

2. In paralyses connected with the brain the tendon reflexes are exaggerated; there is also tendency to muscular rigidity, and the electrical conditions are unchanged.

3. While pupil symptoms are not present in multiple neuritis, they are diagnostic of locomotor ataxia of spinal origin. There is, in addition, in the latter the characteristic inco-ordination. And there is also the absence of qualitative electrical changes.

4. Acute ascending paralysis may be distinguished by the absence of any marked sensory phenomena. And the electrical conditions are unaltered.

5. Paralysis connected with myelitis is early associated with bed-sores, and with vesical and intestinal complications—not present in multiple neuritis.

6. In spinal meningeal disease there is extreme back pain, characteristic retraction of the head, and muscular twitching.

7. In the paralysis of poliomyelitis the muscles of the trunk are first in order of succession paralyzed after the legs. In multiple neuritis it is the extensor muscles of the forearm that are next paralyzed after the legs. When the paralysis in poliomyelitis passes from the trunk to the arm it first attacks the intrinsic muscles of the hand. The two diseases are further differentiated by the absence of any sensory disturbance in the progress of poliomyelitic paralysis.

Prognosis.—In conclusion, it will be evident that early and accurate diagnosis is of the utmost consequence; and that the likelihood of recovery in any case will depend upon the amount of pathological change which may have taken place in the nerve fibres. Degeneration may have reached a stage in which structural recovery is impossible. But, notwithstanding, active treatment should be perseveringly followed in every case, not only in the hope, but with the certainty of arresting the further extension of degeneration to yet unaffected nerves. It need hardly be said that where alcohol is the cause of the disease, its absolute suspension is necessary; and that a similar course should be adopted in the removal in all other cases of known predisposing conditions.

My experience of the advantage to be derived from massage leads me strongly to advise its employment in addition to other remedies, and to combine it, as I did in the present case, with faradic electrolysis.

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IV.—THE ETIOLOGY OF TUMOURS: ABSTRACT OF REMARKS OPENING THE DISCUSSION.

By G. SIMS WOODHEAD, M.D., F.R.C.P. Ed., Superintendent of the Royal College of Physicians' Laboratory, etc.

(Read before the Medico-Chirurgical Society of Edinburgh, 16th November 1887.)

MR PRESIDENT AND GENTLEMEN,—When I accepted the invitation of your Secretary, Mr Cathcart, to open the discussion on this subject, I was, to a certain extent, prepared, as some three years ago I attempted to put into shape my ideas on the subject of the etiology of malignant tumours. In the interval some of my views have gone by the board, others have been modified, but as to the main opinions, time and observation of facts have merely strengthened them. Unfortunately for us, our real information on the subject of tumours is as yet comparatively limited. We know something of their clinical history, of their naked eye and microscopic appearances, but beyond these points our knowledge is of the vaguest and most unsatisfactory character. To-night, Mr President and Gentlemen, should I wander into the region of speculation and theory, I must crave your indulgence, and must at the same time ask you to remember that up to the present all has been theory.

Cohnheim, whose belated rudiment theory we have all so thoroughly admired, was never able to demonstrate his islets of permanent embryonic tissue; and it must be confessed, by even Cohnheim's most ardent admirers, amongst whom I am proud to class myself, that his theory of ensnared and persistent embryonic rudiments and the relation of these to malignant tumours, especially in old people, will not conform to all, or even a majority of all the facts already at our disposal. That certain tumours, notably certain simple and certain cystic tumours, and even some malignant tumours, as in the case of extremely malignant growths

in children, may be accounted for on the assumption that a modification of Cohnheim's theory is correct, I am quite ready to admit, but beyond this I cannot go. I am further willing to admit that there is a possibility, nay, even a probability, that in many cases it may be proved that some of the growths described as malignant tumours may be relegated to the class of infective granulomata, especially in the case of certain rapidly spreading and rapidly degenerating sarcomata, and also in the case of certain lymphadenoid growths. Lastly, although I cannot believe in these tumours as the result of blood disease, my firm conviction is that many of them are the result of altered constitutional conditions, including in the term constitution the vital conditions of the various tissues which make up the organism.

Before we can make much progress with our subject, we must go back to first principles, for in this subject, as in all others with which the clinician and pathologist have to deal, we must rely in great measure for our knowledge of the abnormal on a thorough study of the normal. And in our study of the development of embryonic tissues in the adult, we must avail ourselves of the knowledge which has been accumulated on the development of these tissues in the embryo. I propose, therefore, to-night to include what I have to say under the following headings:—(1), What we may learn from certain points to be observed during the early stages of development of various forms of ova; (2), knowledge to be derived from the study of normal cells on the lines laid down by Goodsir and Virchow and more recent biologists; (3), the application of the laws of nutrition and heredity formulated by the Spencerian school; (4), some of Sir James Paget's statistics as to tumours; (5), my own observations bearing on some of these points. I shall not attempt to classify my remarks under these headings, but most of what I have to say will come under one or other of them.

Segmentation of an Ovum.—Spencer, in his *Principles of Biology*, has utilized the mathematical law, that in similarly shaped bodies the mass increases as the cube of the dimensions, the surface only as the square, or, in Dr Angus Macdonald's words to this Society, "the mass of spheres of different radii varied as the cubes of their radii and the surfaces of like spheres varied as the squares of their radii." From which it follows that the surface area for absorption of nutritive material and for the excretion of effete matter constantly diminishes relatively to the mass, as a cell increases in size (unless the cell be flattened). *Conversely*, Balfour, in his work on *Comparative Embryology*, lays down the general law "that the velocity of all segmentation in any part of the ovum is, roughly speaking, proportional to the concentration of the protoplasm there, and that the size of the segments is inversely proportional to the concentration of the protoplasm." He points out that where the segmenta-

tion takes place equally, regularly, and rapidly, the eggs are of small size and rarely contain much food yolk. That, in those eggs where there is much yolk, it is usually unequally distributed throughout the protoplasm of the ovum, and that the earliest, most rapid, and most complete segmentation takes place in that part of the protoplasm in which there is least yolk. He takes as his example of this condition the unequal segmentation of the ripe ovum of the frog, in the protoplasm of which he found yolk spherules, those at what he calls the lower pole being larger and more numerous than those at the upper pole where there is more protoplasm, in which are embedded fewer and smaller of these yolk spherules. The first furrows (vertical) always commence at the upper or protoplasmic pole; after the second of these has been formed, a transverse furrow is formed (though the equator of the ovum is much nearer the upper pole), and so on, until the upper half of the egg is composed of a mass of small cells, in which is found little yolk, whilst the lower half is made up of much larger cells, in which yolk spherules may still be distinctly seen. I have also been able to follow out this subject in the ova of the herring and cod through the kindness of my friend Mr George Brook, to whom I am indebted for many valuable hints and suggestions.

In the herring ovum we have, in the first instance, the protoplasm and the yolk mixed together. After a time there is a stream of protoplasm to the upper pole. The separation is not complete, but it is quite sufficient to enable one to see what a great influence the amount of yolk has on the rate of segmentation of the protoplasm. A mass collects at the upper pole; from this threads stream down into the yolk. Here again the segmentation commences at the protoplasmic pole, and there goes on with considerable rapidity; but that part of the protoplasm which is in direct contact with the yolk does not take part in the general segmentation, but remains as a distinct layer of undivided protoplasm for some considerable time—the so-called parablast.

In the cod ovum there is also a streaming of protoplasm to one pole, at the surface, but we have here no threads passing down into the yolk. Segmentation commences at the protoplasmic pole. Here the cells are smaller, but, as we pass from the surface, they gradually become somewhat larger until we reach a layer of protoplasm immediately in contact with the yoke in which there is no trace of division into separate cells. Here it should always be borne in mind that the small epiblastic cells are formed at the protoplasmic or so-called formative pole as well in the human as in other embryos. In *Nassa Mutabilis* we have a still more marked following out of the same law. In this form the yolk, as in the last case, sinks by gravity, the protoplasm furthest from the yolk begins to divide, and the rate of division and size of the cells are in inverse ratio as the amount of protoplasm present in any part of the ovum.

Here, then, we have a statement of a law, or a hypothesis if you will, by Spencer, and following it we have certain facts given by Balfour which may be said to bear out this law. These facts have, I believe, very great importance in pathological processes, an importance which can scarcely be over-estimated; but for the present we will consider its bearing on tumours only.

It is a usual statement that tumours are the result of increased or diverted nutrition to a special area of tissue, and that there is always great difficulty in distinguishing between a neoplasm and a hyperplasia. I hold that the essential feature in the formation of a tumour is that we have in it the result of impaired nutrition: although there may be actually more nutriment going to a part, this may still not be equal to the requirements of the tissue.

Let us see what takes place in a cell when it first comes into existence. For a certain time it takes up food, begins to increase in size; if it be an amœboid cell, vacuoles are formed and extruded. The protoplasm becomes, first, more granular, and then, after a time, the activity of the cell appears to diminish, and the protoplasm becomes clearer. Pseudopodia, which are at first projected, become less frequently thrown out and less prominent, and at length the cell appears to become very sluggish. Should you cool down your warm stage, the cell becomes sluggish much sooner, but should you stimulate the protoplasm by heat, or in any way that may be suggested, all the activities of the cell become increased, nutriment is taken up and effete matter is thrown out. If the supply of food stuff is sufficient in quantity and readily accessible, we can imagine that under a certain stimulation the building up of the cell will go on for a certain period in excess of the breaking down process,—that is, there is anabolism in excess of katabolism. There comes a time, however, at which these two are balanced, if stimulation continues constant. Now, however, increase this stimulation in the slightest degree, and we immediately have a different condition set up, and the work which the protoplasm is now called upon to do is in excess of the food supply. There is no longer a condition of balance, but there is an increased demand without corresponding supply. To do the work that it is called upon to do, the cell must undergo some change or other. It cannot perform its full specialized functions at this higher pressure, and consequently it does two things,—it increases its area of absorption, and, at the same time, increases its area of excretion by dividing into two (see above hypothesis). That this is not mere theory we have the above quoted and many other facts to prove, and at some future time I hope to be able to bring some additional facts from numerous pathological processes, especially in inflammation and repair, to bear out Dr James and Mr Geddes's theory.

Let us take as an example what takes place in the ovum. We

have a cell so placed that it is kept from all excessive irritation ; it grows slowly, but constantly, the large supply of food and everything tending to allow of its developing its building up powers to the full ; it does not excrete much, from the simple fact that all the energy is devoted to storing up food which is probably brought to it in its most suitable form. So long as this cell remains where it is, so long will its characters remain comparatively unchanged. If now, however, when it is released from its follicle, it comes in contact with a spermatozoon, or what Geddes calls a katabolic cell, the cell in which the activity is exceedingly great, —so great that the tendency is rather towards a breaking down than a building up,—we have an alteration in the condition of affairs. Immediately the protoplasm of the ovum is stimulated to increased activity, and we have in consequence an altered state of nutrition, and the segmentation of the ovum commences in accordance with the above law. Whether the hypothesis be correct or not, we know that this is what actually takes place. This question of nutrition and the relation of irritation to nutrition is constantly coming into play in connexion with tumours, and I cannot lay too much stress on it at the very outset. We find then, where irritation is greatest, and where consequently nutrition is imperfect, that the cells which would under different conditions become to a certain extent specialized,—that is, would take on a certain function,—have their energy diverted, as it were, into reproduction instead of becoming developed functionally. It is all they can do to maintain their own existence, or the existence of their species ; they have not energy enough to pay attention to their specialized function ; for the present they are engaged in reproduction. I have spent some little time on this subject of nutrition, because it is on this I conceive that the greater part of the etiology of tumours must be based. Here, however, another most important law comes into play—the law of heredity.

We have been taught by the cellular pathologist that cells beget their like, and such is undoubtedly a matter of everyday experience. We must, however, add a rider to the effect, that cells beget their like only under conditions within certain limitations. We know that by varying the conditions we can to a certain extent alter the character of the cells. Goodsir's description of the behaviour of cartilage cells in the healthy condition and when subjected to irritation is an admirable illustration of this. (This is just a corollary to the above.) We know, too, that if the irritation be removed, the cells which are formed gradually assume the aspect of cartilage cells. So far so good. This law of heredity does not work in one direction only ; it comes quite within the range of possibility, that if cells are formed generation after generation under the action of some irritant, that their specialization may be gradually interfered with permanently, and a less and less irritant serves to keep up this new form of cell, until eventually an acquired form may

become more or less permanent, especially if constitutional conditions assist—such conditions as those to which we shall afterwards have to refer.

Let us now take up in order some most important facts connected with the development of the different groups of tissues of the body. For our purposes it will be well to group epithelial surfaces together, and to look upon connective tissues also as a single group.

All the epithelial surfaces are formed by a single layer or by several layers of cells, the forms of these cells varying very greatly according to the function which they have to perform. The connective tissue I need not describe, but I may point out that whatever groups of cells we examine, and in whatever conditions, we always find the same rule—the greater the vegetative power the less the functional. We may follow this out during the development of the various tissues. During intrauterine life, when we have development and growth going on at a very considerable rate, and when a great part of the work is done by the maternal tissues, we find that the tissues most rapidly developed are those of the connective tissue group. These tissues are plastically extremely active, but they do not become fully developed; a great part of the energy is diverted from ordinary growth and nutrition to reproduction. Even in those organs in which we have a development of the epithelial structures we find that energy and nutrition are diverted not to function, but to reproduction. It is on this account that we have all the infoldings of epithelial surfaces at certain points, and that we have, as it were, the outline of the structure of the gland long before it is called upon to perform its function as a whole. Even when the gland becomes active, the first draft on its energy is for vegetative work.

During this period we cannot describe either of these groups of tissues as stable, and one can readily imagine that any great nutritive disturbance, especially where impaired nutrition is due to increased demand on the cells, as by an irritation, will give rise to tumour growth if the irritant be local.

What do we find to be the actual fact? Sir James Paget points out that the special tumours met with during foetal and early life are, in by far the greater proportion of cases, of sarcomatous character. Primary encephaloid cancers are in some instances met with, but these may, in almost every instance, be referred to organs in which there appears to be some interference with the development of the organ. In these cases, I hold that we have as yet an unbalanced condition of the tissues; the building up process is going on at a great rate, and the tumours occur in those tissues—that is usually connective tissues, on which the greatest strain is put under ordinary developmental conditions.

What do we find in adult life? At this period the two sets of tissues may be looked upon as growing equally, side by side.

They are both now past the great vegetative strain, and have settled down to their everyday work and to their everyday nutrition. Not only that, but they appear to be, to a certain extent, interdependent one upon the other—an increased growth of one is accompanied by an increased growth of the other. Here again we find—and again I take the authority of Paget and Virchow—the tumours of adult life are adenomas, cystic glandular tumours which have no great tendency to become malignant, the so-called cystic sarcomas and fibro adenomas, in which we have always an increase in both sets of tissues, the glandular tumours of the parotid, etc., and it is a curious fact that these vary in one direction or the other, *i.e.*, are more sarcomatous or more glandular, according to the age at which they are developed. Lastly, we have a stage, of which we may speak as the stage of cancer, where, as it were, the connective tissues have passed their prime, and where the epithelial tissues are also on the turn, but where they have still great vitality, sufficient to be diverted from the imperfect functional to a vegetative activity. It is at this stage that cancers and epitheliomas are common.

Statistics tell us that during early life tumours of the connective tissue type are most frequently met with. In adult life, mixed and frequently non-malignant tumours, and, lastly, in old age, or rather at the end of adult age, epithelial tumours occur. I hold that the same irritant may give rise at these different periods of life to the different tumours, and that because of the different nutrient and developmental states of the tissues. Paget contends that an irritant morbid condition of the blood is the cause of the growth, and he speaks of the constitutional nature of cancer. It must be conceded that the cancerous condition is a constitutional one, but in a far deeper sense than that of which we speak as a blood condition. We must look for it in the actual condition of the tissues themselves.

Let us for a short time confine our attention to epithelial tumours which occur as the decline of life advances. We are accustomed to say that cancers of the breast occur in women from 45 to 50 years of age, as Paget points out, when the functional activity of the highly organized epithelial cells of the milk gland is declining. If there is continued stimulation of these gland cells, it is accompanied by an increased demand on the activity of these cells, which are now neither sufficiently organized nor sufficiently nourished to be able to perform their full function, and as a consequence, vegetative activity increases, and we have formed a number of imperfectly developed epithelial cells.

In classifying cancers and epitheliomas, the age of the patient and the organ affected should always be taken together. For instance, we find that epitheliomas of the skin and mucous membrane (in which function is never so specialized, but remains longer) are usually developed later in life, between 60 and 70, and

in connexion with this, I should like to bring under your notice one or two important facts, some of which, no doubt, most of you have already observed. If one examines first the tongue of a foetus, then that of a child, an adult, an old person of between 50 and 70, one cannot but be struck by the very marked differences in structure. In the foetus of eight months, the epithelium of the side of the tongue consists of several layers of small cubical cells, on which are superposed one or two layers of slightly flattened cells, the papillæ are few and small, and the submucous tissue of the rest of the body is of a distinctly myxomatous type. Here we have apparently a rapid growth of the connective tissue, whilst the epithelial elements form merely a thin delicate covering. In the tongue of a child two or three years old, or even younger, we find all this altered. The connective tissue, though still growing rapidly, as is evident from the large number of nuclei to be seen, has now a more definite connective tissue structure, the vessels are comparatively large, and the epithelial cells on the surface have the characteristic arrangement and appearance, the cells of the lower layers are cubical or slightly columnar, those above are polygonal, and those near the surface are flattened, and often of considerable size. In the adult there are but two changes from this—the connective tissue layer is perhaps still more definite in its character, is increased in thickness, contains fewer small round cells, though the bloodvessels are just as numerous and as prominent. Coming to the surface, the epithelial layers are simply more numerous, though we have a rather more marked horny layer. On examining the tongue of an old person we are at once struck by the very marked changes that have taken place in both the connective tissue and epithelial layers. The connective tissue layer is distinctly thinned, and at its deeper parts there are very few small round cells; there may be a few near the surface, and of these we shall have more to say immediately. The fibrils of connective tissue are wide apart, and appear to be much atrophied; the epithelial tissue is, however, in quite a different condition. Under a low power we may see the masses of epithelial cells, instead of being simple as heretofore, are now very considerably branched, small finger-like processes passing down from the main mass into the connective tissue layer, until in some cases one could almost imagine one was examining an epithelioma, especially where, as in some instances, there are small cell nests formed in the thickened epithelium. When we have this condition of affairs normally, for it seems to occur in the tongues of most old people, one can readily understand how some comparatively slight but long-continued irritation at this point may give rise to an epithelioma. In such a case we have practically an invasion of the much atrophied and non-resistant connective tissue by the highly vegetative epithelium.

Before this Society it is not necessary for me to refer to the

work of Dr Foulis, whose beautiful researches we have all admired. I cannot altogether fall in with his thesis, that it is only the ovum that is derived from the involuted layer of epithelial cells, though there are several most important facts which seem to favour that view, but in connexion with his work I should like to remind the Society that in the ovary of the embryo the invagination of the epithelial layers seems to take place either before connective tissue is formed or before it is present in very great quantity. We have, as it were, a laying down of the outlines in epithelium, and then a growing in of the connective tissue framework.

In old people it has often been remarked that, as involution of the breast proceeds, the connective tissue becomes opener, the spaces larger, the cells fewer; in fact, it becomes atrophied, and this atrophy becomes more marked as age advances. If during this period of atrophy there is no irritation, there comes a time at which the epithelium also undergoes atrophic changes, and there is a steady involution. Should there be any irritation, however, there is a greater instability in the epithelial cells, and as a result we have vegetation or proliferative activity on their part, an invasion of the non-resistant atrophied connective tissue, and the formation of a cancer.

In discussing the ingrowth of epithelium I should like to refer to another point in development. There are, as we know, three segments in which the alimentary canal is developed,—(1), The mesenteron (hypoblast), from which the greater part is formed; (2), the stomatodeum or mouth invagination, which is formed by an ingrowing of the epiblast; and (3), the proctodeum or anal invagination, which is formed by the ingrowing of the epiblast at the other extremity.

As is well known, these two latter are the positions in which epitheliomas make their appearance. This may be partially due to the fact that at these points we have the greatest exposure to various forms of irritation. Making full allowances for this, however, we should still bear in mind that the ancestors of the cells in this position acquired a habit of invasion, and that what Creighton calls unconscious memory may here play a not unimportant part in the process of tumour formation. It was Mr Syme, I think, who insisted that a cancer of the rectum was always within reach of the finger—a fact which throws light not only on the development of cancer, but on the development of the rectum. Virchow in his great essay on Metaplasia laid special emphasis on the fact that in certain diseases we might have an actual transformation of one kind of tissue into another,—usually, however, to one nearly allied. He holds that although not yet proved, it is quite possible for a carcinoma to be developed from connective tissue. Creighton, we know, enunciates the same doctrine in his work on *Cancer of the Breast*. Whilst holding this view, Virchow conceded that it was a state of affairs comparatively rarely met

with. For this statement he was loudly called to account by embryonic layer pathologists, but what is there so extraordinary in his statement? All cells are derived from a single cell, the ovum, and as it divides we cannot for a time make out any difference in the appearance of these cells even after differentiation into layers has commenced.

We have first two epithelial layers, and the mesoblastic or connective tissue only makes its appearance at a later stage still. Once started, it rapidly outstrips the others. Had we taken one of the epiblast cells and placed it amongst different surroundings, might it not have developed into a mesoblast cell? Seeing then that we have these indifferent cells during embryonic life, cells which, owing to their food, their position, or their surroundings, may become developed into epithelial or into connective tissue cells, is it not also possible that under certain conditions we may have first a reversion to the original indifferent cell, and then a partial evolution to one or other of the more specialized types? That such a cycle seldom occurs I should be one of the first to admit, but that it never occurs I should be very chary of conceding. A limited metaplasia—*i.e.*, a modification of tissues of the same group or an imperfect evolution of the cells of that group—is, we know, of very frequent occurrence; and so it is, we say, that tumours are derived from certain embryonic layers. A sarcoma or tumour of the connective tissue type from the mesoblast,—cancerous tumour from the epi- or hypo- and mesoblast.

In discussing the constitutional aspect of tumours, I spoke of the age of the tissues as one of the important factors in the production of tumours. As we are told in a certain department of this School, "Gentlemen, we are not as old as our years; but as old as we are." A man may have his age passed on to him from old parents, and the most interesting question to be determined is, In what proportion of cancerous patients is this the case?

His tissues may become aged from bad surroundings, want of food, want of air and light; we may have ageing of tissues, on the other hand, from imperfect nutrition, due to excess of food or imperfect elimination, a very good example of this being in the case of gouty individuals (hereditary age manifesting itself in the same disease). Syphilis, malaria, and various other diseases are all most potent factors in the conditioning of tissue old age, and all are said to play a part in the causation of tumours.

In conclusion I may sum up as follows,—Imperfect nutrition is the cause of cell proliferation. Imperfect nutrition may be due to a want of food, to an increased demand for food set up by an irritant, or by an increased difficulty on the part of the cell owing to its size and position of taking in food and of getting rid of its waste products.

During the life of the individual, we have the tissues preponderatingly anabolic or katabolic at different stages of that life.

The curves corresponding to these do not correspond to, nor do they run parallel to, one another.

During foetal and early life the anabolic curve is high, all the tissues are growing; the katabolic curve is also very high, correspondingly higher in the connective tissues than in the epithelial, with one or two exceptions before mentioned. As life advances we get a more stable condition, the anabolic curves remain higher and more evenly balanced in the two sets of tissues, the same with the katabolic curves. But at the end of adult life we find that the anabolic curve falls in both sets of tissues, a gradual decline in that of the connective tissue, but first an abrupt drop in that of the epithelial tissues in the female in connexion with the involution of the breast, etc., and then the more gradual one of the skin, etc.; in the male we have only the more gradual falling. Towards the end of life the epithelial curve does not fall so rapidly as the connective tissue curve.

It is during the periods that these curves become separated from one another that we have the formation of malignant tumours, and then because of the demand on the resources of the tissues being in excess of their nutrition.

The irritant giving rise to this increased demand may be a simple injury, or it may be found to be a parasite, or microbe in some instances, or a long-continued action of some irritant, organic, or inorganic matter, or it may be merely a chronic catarrh.

These irritants can only take full effect and give rise to a tumour when the nutrient conditions of the tissues are so altered by irregular nutrition or age that the line of resistance is passed, and a tumour hitherto composed merely of granulation tissue in which there is a tendency to higher organization loses part or the whole of that power, and remains a sarcoma. Or a tumour hitherto composed merely of granulation tissue covered with epithelium becomes a tumour of non-resistant granulation tissue, into which epithelial processes can make their way, every day increasing the facilities for the continuance of the condition.

V.—CASES OF ENDO-LARYNGEAL REMOVAL OF GROWTHS FROM THE VOCAL CORDS.

By G. HUNTER MACKENZIE, M.D., Laryngologist to the Eye, Ear, and Throat Infirmary; Vice-President, Section of Laryngology and Rhinology, British Medical Association.

IN continuation of the subject of growths in the larynx and their treatment, I now submit notes of four cases (six operations) which I have lately treated by endo-laryngeal means. My previous communication on the subject referred to a case in which thyrotomy was twice performed for the removal of a large papillomatous

growth,¹ which could not be entirely removed by endo-laryngeal surgery, but which was entirely eradicated by a second performance of the major operation, though at the same time the patient evinced a curious predisposition to the development of similar growths at other parts of the upper respiratory and deglutitory tract. In the cases now recorded the operation of removal was performed—as it ought always to be—under the guidance of the laryngeal mirror, by means (excepting the last) of Morell Mackenzie's rectangular laryngeal forceps, the most useful and convenient instrument for the purpose.

I. *Case of Chronic Laryngitis, probably Tubercular; Tracheotomy; Removal of Warty Growth from the posterior third of the left Vocal Cord.*—J. D., aged 27 years, was admitted to the Eye, Ear, and Throat Infirmary, Cambridge Street, on 4th February 1887. His sputum contained a few tubercle bacilli, and his larynx presented the appearance of chronic inflammation undergoing tubercular degeneration. Principally owing to increasing stenosis, tracheotomy became necessary, and was skilfully performed by Dr Maxwell Ross on 6th April 1887. A few months subsequently a small warty-looking growth commenced to grow from the posterior third of the left vocal cord, and as the condition of the larynx had materially improved since the tracheotomy, and the patient was anxious to attempt breathing *per vias naturales*, it was determined to clear away the growth as a preliminary to removal of the canula. This I did on 6th January 1888 in the presence of Drs Ross, Lightfoot, Renny, and others. The growth proved to be of a papillary nature, and has not recurred.

Remarks.—Growths form a not uncommon feature of phthisical disease of the larynx. The tubercular variety was first described by Ariza² (recently deceased) and Mackenzie of Baltimore.³ They may be multiple, and may attain such a size as to fall under the category of tumours and seriously occlude the larynx. The papillomatous variety is most frequently found on the interarytenoid space; of this there are several cases now under treatment at the Eye, Ear, and Throat Infirmary. According to Major⁴ these latter are of considerable value in the diagnosis of laryngeal phthisis. In all instances, whether they be fibrous, papillomatous, or genuinely tubercular, their removal by endo-laryngeal means is clearly indicated.

II. *Case of removal of Growths (three) from the posterior third of the right Vocal Cord.*—This case is the most important and inter-

¹ "Case of Thyrotomy for Recurrent Growths in the Larynx," *Edin. Med. Journal*, December 1887.

² *Anfitreatro Anatómico Español*, 1877, p. 149, etc.

³ *Archives of Medicine*, New York, 1882.

⁴ *Transactions of the Fifth Annual Meeting of the American Laryngological Association*, 1883.

esting of the series. A. B., male, aged 45 years, highly nervous, but non-cachectic, consulted me on the 4th August 1887 on account of hoarseness, first manifested in November 1885. This had slowly increased in intensity, and latterly had been accompanied by a "feeling of tightness" about the larynx. A similar feeling had been present in 1881, and had spontaneously disappeared. No pain was felt, but a slight amount of discomfort in swallowing was experienced. The left vocal cord had a nodular thickening on its anterior third, and from its thickened posterior third there sprung



Fig 1

a sessile, fleshy-looking growth which projected into the glottis. (Fig. 1.) The mobility of the vocal cord was noted as being slightly impaired. No glandular swelling was present. On the 15th August I removed the growth after application of a 7 per cent. solution of cocain. On the 7th September I saw the patient in consultation with Dr Stewart, Uphall, his ordinary

physician. The growth evinced a tendency to slow recurrence, and on the 7th and 14th November I removed, without cocain, two other and smaller growths, on the latter occasion in the presence of Dr Thyne. Up to April 1888 there had been no further recurrence of the growths, the voice was good, and laryngeal symptoms were *entirely absent*. A nodular thickening of the vocal cord was still present, especially at its anterior extremity. The patient described his local and general condition as most satisfactory.

The growths removed in this case were kindly examined by my friend Dr Wolfenden, Upper Wimpole Street, London. The following is his report:¹—

"The growth has been stained with borax carmine in the usual manner. Sections cut and mounted in Canada balsam show it to be an *epithelioma*. The outermost layers of epithelium are cornified, the underlying layers are irregularly disposed, large-celled, and the cells contain often more than one nucleus. Some cells show signs of partial division. The vacuolition of the epithelial layers is very marked. Only in a few places is any line of demarcation between epithelium and stroma. The former dips into the latter, forming characteristic nests of cells or 'cancer pearls.' Some of these are isolated throughout the stroma and base of the growth. The stroma is in most places greatly infiltrated with small cell growth. The characteristic so-called 'epithelial nests' are numerous, and occur both in the epithelial layers and in the stroma." (Fig. 2.)

Remarks.—Microscopical examination thus disclosed an undoubted malignancy in the growths, a result markedly at variance

¹ Drs Wolfenden and Martin have selected these growths to illustrate the class to which they belong, in their valuable and beautifully illustrated work on *Studies in Pathological Anatomy, especially in reference to Laryngeal Neoplasms*, now in course of publication by Messrs Churchill, London.

with the history, symptoms, and laryngoscopic appearances of the case both before and since the operations.

In regard to further treatment, this is how the matter stands. On the one hand we have an undoubted case of endo-laryngeal malignant disease in an early stage, and consequently favourable for operation. On the other hand, the operation in question—partial or complete laryngectomy—has a disastrous record, and does not appear to be gaining in favour with the profession. Fränkel's rule for our guidance in these malignant cases appears to be wisely construed.¹ He says that, when possible, the growth ought to be removed by endo-laryngeal means. If there be no immediate danger, and if the disease have not extended to the other side of the larynx, we ought to confine ourselves to endo-laryngeal treatment. The patient is to be kept under laryngoscopic examination, and each recurrence is to be treated as soon as possible in the same way. Should the limit of endo-laryngeal treatment have been reached, then partial resection is justified. He narrates a case of "cancroid" of the larynx,² with microscopical confirmation, treated on these lines, in which several recurrences took place at first, but in which an interval of about three years has elapsed without any recurrence.

I am the more disposed to adopt this line of treatment in the present instance, as it is the one which meets with the concurrence of the patient. Should the disease become unmanageable by endo-laryngeal means, the operation I would be inclined to recommend would be thyrotomy, and, after a careful examination of the neoplasm and its attachments, resection of the vocal cord, and as much of the thyroid cartilage as might be deemed necessary to thoroughly eradicate the disease. I think that, in the case now under notice, this might be accomplished by an operation a good deal short even of semi-extirpation.

This case is an admirable example of the great value to be attached to microscopical examination of these neoplasms. It is only when the results of such are *negative* that doubt can creep in.

III. Removal of a Myxomatous (Cystic) Growth from the left Vocal Cord; Complete Recovery.—A woman-servant, aged 35 years,

¹ Von Langenbeck's *Archiv*, Bd. xxxiv., Heft. 2, 1886.

² *Op. cit.*

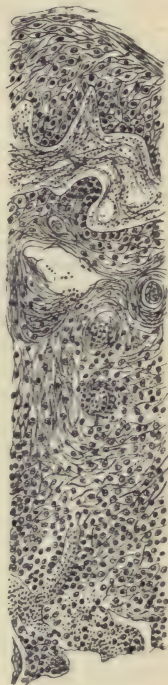


Fig 2

Section through the growth, showing the epithelial new formation invading the non-epithelial parts and base of the tumour. (Hartnack, objective 4, eyepiece 3, tube drawn out.)

applied at the Eye, Ear, and Throat Infirmary on 28th February 1888, on account of pain and uneasiness on the *right* side of the larynx, huskiness, especially towards evening, and slightly impeded respiration. On laryngoscopic examination the whole of the left vocal cord was reddened but not thickened, and from its posterior extremity a rounded sessile growth, having the appearance of a white currant, projected into the glottis. (Fig. 3.) On the 2nd March, after application of a 10 per cent. solution of cocain, I removed the growth in the presence of Drs Ross, Buist, and others. It proved to be a myxomatous cyst. The reddening of the vocal cord, along with every trace of the growth, disappeared under subsequent appropriate local treatment, and complete recovery ensued.



Fig 3

IV. *Removal of a Polypus from the right Vocal Cord; Complete Recovery.*—A man, aged 30 years, was admitted to the Eye, Ear, and Throat Infirmary on 27th December 1887, complaining of huskiness, and a feeling of discomfort and dryness about the throat. Laryngoscopic examination revealed an extremely pendulous epiglottis, which made the detection of a growth at the anterior extremity of the right vocal cord a matter of some difficulty. This polypus had a slender pedicle, and moved freely to and fro with the respiration. It was readily detached by means of a laryngeal brush. The patient's symptoms thereafter completely disappeared.

Cases III. and IV. call for little comment. They belong to the class of neoplasms which are most amenable to endo-laryngeal treatment, and which seldom recur.

VI.—NOTES OF A YEAR'S WORK IN ABDOMINAL SURGERY, WITH TWO CASES OF SUPRAPUBIC LITHOTOMY.

By RUTHERFORD MORISON, M.D., F.R.C.S.Ed., late Visiting Medical Officer, Hartlepool Hospital, Newcastle-on-Tyne.

DURING last year the following cases of surgical interest and requiring operation came under my care. In the hope that the notes may interest some readers of the *Edinburgh Medical Journal*, many of whom I have the privilege of knowing as friends, I send them for publication.

For able assistance and advice during the operations, and skilful care in the after-treatment, which devolved almost entirely on him, I have to thank my brother Dr A. E. Morison.

Case I.—Broad ligament cyst; enucleation; recovery.

Case II.—Ruptured ovarian cyst; ovariectomy and washing out peritoneal cavity; recovery.

Case III.—Oophorectomy; cystic ovaries; recovery.

Case IV.—Suprapubic lithotomy; patient in eightieth year; recovery.

Case V.—Extrauterine pregnancy operation; removal of foetus; recovery.

Case VI.—Attempted suprapubic, followed by lateral lithotomy; recovery.

Case VII.—Cholecystotomy; removal of between 50 and 60 gall stones; recovery.

Case VIII.—Intestinal obstruction; gall stone in sigmoid flexure; opening of intestine; suture; death.

CASE I.—*Broad Ligament Papillomatous Cyst; Enucleation; Recovery.*

J. A., 39, widow. Husband died $3\frac{1}{2}$ years ago, after 12 years of married life. She has only had one child, a year after marriage; 14 years old now. She suckled the child. No other children or miscarriages. The patient is an active, intelligent-looking woman of nervous temperament. Hair black, eyes brown, complexion brownish florid. She is fairly nourished, though thinner than she was. With the exception of the abdominal tumour, all her organs are healthy. Menstruation has been regular, recently profuse. She was nearly 20 years of age before commencing.

History.—Her family are all healthy, and she has enjoyed good health till now. She has lived comfortably, and knows of no cause for her present illness. After the child was born, she had a bad illness which laid her up for nine weeks, apparently an attack of pelvic inflammation. Between six and nine months ago she first noticed the abdomen growing larger, and for the last two months the increase has been rapid. She thinks that the tumour is lower down than it used to be, and is larger some days than others. She has had no feverish attacks, and the bowels have never been tender on pressure. When she first noticed the enlargement in the bowels, she was frequently sick and vomited, but latterly has not done so. At different times she has had pain in the bowels, which she thought was caused by wind, because of the movement and rumbling in the belly when the pain came on. For the last week she has had an attack of such pain every night, commencing in the pelvic region and extending to the back, and it was on this account chiefly she sought my advice. She says those attacks are so severe that she does not know what she should have done if they had not soon passed off.

On *inspection* of the abdomen it was seen to be enlarged, rounded, and prominent in front. Lineæ albicantes well marked in lower abdomen. No dilated veins. The tumour appears to move fairly freely up and down with respiration. The recti muscles do not stand out on exertion.

On *palpation* the parietes are thin and healthy. The abdominal swelling feels like a tense cyst. The tumour moves fairly freely from side to side, but cannot be moved from the pelvis. An indistinct fluid wave can be felt from side to side, and from the most prominent part of the tumour outwardly to the sides. No crepitus and no tenderness on pressure.

The measurements are:—Round umbilicus, $31\frac{3}{4}$ inches; from ensiform cartilage to umbilicus, $6\frac{1}{2}$ inches; from umbilicus to symph. sup., 7 inches; from right ant. sup. il. sp. to umb., 7 inches; from left ant. sup. il. sp. to umb., 8 inches.

On *percussion* the whole of the prominent anterior part is dull. The dulness reaches below from the pubes; above to midway between the umbilicus and ensiform cartilage. Laterally both flanks are clear to a line drawn vertically upwards from a point an inch behind the ant. sup. sp. proc. The upper limit of dulness moves fully one inch downwards on deep inspiration. The lumbar regions give a clear percussion note. The liver dulness is normal, and there are no signs of pressure in other organs. There is no loss of sensation in either inguinal region.

P.V.—The uterus is posterior to the tumour. The cervix has an old deep laceration on each side. The uterus is pushed backwards by the tumour, which can be felt pressing down in front of it and occupying the anterior half of the pelvis. The uterus is high up and moves with the tumour. The vagina, anus, and rectum are normal.

The front of the tumour was punctured with a hypodermic syringe, and 2 drachms of fluid obtained. The fluid has a light brown chocolate colour, and under the microscope showed cells consisting of a number of globules like fat or mucin, changed blood corpuscles, and cholesterine crystals.

My diagnosis was an ovarian cyst adherent in the pelvis. Dr Murphy of Sunderland, who was present at and examined the patient immediately before operation, made the diagnosis of broad ligament cyst, which was verified immediately. The operation was performed on 17th March 1887.

As soon as the abdominal cavity was opened, it was plain that the case was one of broad ligament cyst. The layer of peritoneum over the cyst was divided, the cyst separated in front and tapped. It was then carefully enucleated, bleeding vessels being caught in forceps as they were met with. The last part of the separation of the cyst was accomplished by ligaturing and dividing a broad and vascular part of the broad ligament in the same way as a pedicle, though no true pedicle existed, and the cyst could have been stripped off throughout. The ovaries could not be found without undue searching, being buried in adhesions.

The operation was finished in the usual way by cleansing the peritoneal cavity, ligaturing vessels requiring it, and suturing the wound. A Dr Keith's glass drainage tube was used.

After-progress.—On the fourth day the drainage tube was taken out, as there was no further need for it. For the first week the patient was as well as possible. On the eighth day she complained of pain in her bowels of the same character as she had suffered from before the operation. Nothing relieved this, and her bowels became swollen, tender, and some sickness followed. Her pulse and temperature, however, remained normal, but for four days her condition caused me considerable anxiety. The bowels were then freely relieved, and from this time she had no further trouble, and went home on the seventeenth day. The patient remains in excellent health.

Remarks.—On examining the cyst after removal, a papillomatous growth was found at what had been its most dependent part. Surrounding this growth was a thickened area about the size of a five shilling piece. On cutting into this and examining it carefully it was found to be made up of a series of small separate cysts, springing from the centre of each of which a small papillomatous growth could be seen. It was evident that the free papilloma was of the same nature as these, and had grown more freely by bursting through its cyst wall into the cavity of the main cyst.

I have related this case at some length, as in thinking over it I have felt great interest in its causation. The history of normal pregnancy, then sterility following an attack of pelvic inflammation, the position of the cyst, the presence of a papillomatous growth of such a shape and appearance as to be suggestive of possibly altered placenta, will lead me to carefully examine similar cases in the future with the theory of an arrested extra-uterine gestation in view.

CASE II.—*Multilocular Ovarian Cyst ruptured in the Peritoneum ; Operation ; Recovery.*

I. T., 28, married, mother of three children, youngest two years of age, was brought to me in April 1887 by her medical adviser, who had already told her she had an ovarian tumour.

On examination we found all her organs healthy with the exception of the abdominal tumour. The diagnosis arrived at was that she had a large ovarian tumour which was not adherent, but that, in addition, there was a large quantity of free fluid in the abdominal cavity, which there was no history of rupture or peritonitis to account for.

The operation was performed at the patient's own house in the country, near Stockton, on 3rd May 1887. I was ably assisted by Drs Pelkington, Clegg, and Fagge of Stockton.

On opening the abdomen the tumour was found surrounded by a quantity of free, glairy, thick, ovarian fluid. The tumour was removed in the usual way, and finding the free fluid difficult to sponge out, I washed the abdomen with hot water till it was

thoroughly clean. The operation was then finished in the usual way without drainage.

After-progress.—For the first three days sickness was a troublesome symptom. With this exception the patient had nothing wrong. She was up on the eleventh day, and went out for a short walk on the fifteenth day.

Remarks.—The usual history of pain with collapse, followed by peritonitis, commonly given in cases of ruptured cyst, was absent here. The tumour was not a malignant one, and there were no papillomatous growths in it, so that no further trouble is likely to be experienced. The patient continues well.

CASE III.—*Oophorectomy; Removal of Two Cystic Ovaries; Cure.*

I was called to this patient in September 1887, and found her in bed very ill as a result of uterine hæmorrhage. (On examining her I found distinct evidence of ovarian disease, and nothing else to account for her illness.) She has been married a year, but had no children. The patient had recently been under Dr Oliver's care in Newcastle Infirmary, and before deciding on anything I wrote for his opinion.

The following is the account he has kindly given of the case:—

"History.—She was admitted under my care in the month of June last 1886, blanched and extremely ill, after a severe uterine hæmorrhage. She was married, and 26 years of age. From the age of 15 to 20 she enjoyed good health, but suffered from pain at her menstrual periods. When 20 years of age she was house-cleaning, and in lifting a heavy bedstead she felt something give way in her abdomen, accompanied by a good deal of pain and a feeling of sickness. Up till now her menses had been normal as regards time and quantity, and although she was not menstruating at the time of the strain, uterine hæmorrhage came on that night, and lasted some days. The hæmorrhage now returned every fortnight. She was treated medicinally by Dr Weir, and for a time with success; but later on bleeding returned every fortnight. A year and a half ago she married, and this, instead of improving, apparently aggravated matters. One uterine hæmorrhage would now scarcely cease than another would begin. There was extreme anæmia, with loud cardiac murmur, particularly over the pulmonary artery. Per vaginam could be felt two large cystic masses behind, and slightly, too, on either side of the uterus, which were regarded as diseased ovaries. I treated her by complete rest in bed, and gave her from 20 to 30 ms. of tinct. hydrastis canadensis thrice daily, and for a month the bleeding entirely ceased. She then menstruated but normally. After that she did not see anything in the shape of discharge for other three weeks. The question of the removal of the ovaries was considered, but her husband's absence from home and the temporary improvement which was effected

decided her to postpone the decision. Soon after this the bleeding recommenced, and it was in this condition she consulted Mr Morison. A more unfavourable case for operation could scarcely be met; but in my opinion nothing short of removal of the ovaries will save the patient's life."

The danger and results, immediate and remote, were explained fully to the patient and her friends, and they desired that the necessary operation should be performed.

This was done on 15th September 1887. The operation presented no unusual difficulty. On both sides the ovaries were adherent and cystic, and in removing each a thin-walled cyst burst into the peritoneal cavity. This necessitated some sponging. No drainage tube was used. The wound was dressed in the ordinary way.

The patient was undisturbed by the operation, and recovered without any symptom which caused the least anxiety. On the tenth day she was out of bed, and, except for a slight hæmorrhage on the second and third days after operation, she has had no further trouble.

Remarks.—The ovaries removed appear to me to be small multilocular cystic ovarian tumours. In the right ovary is one large cyst capable of holding about an ounce of fluid, and studded over the walls of this are numerous cystic growths such as one finds in ordinary ovarian cystomata. In the left ovary similar changes have occurred, but are not so well marked. It is evident that this woman's life was saved by oophorectomy, and in such a case there can be no question as to the necessity for the operation. In fibroid tumour, too, I have met with striking success from this operation, the hæmorrhage being completely arrested, and the tumour gradually disappearing; but I would be unwilling to remove the ovaries in any case unless I could satisfy myself by physical examination that there was gross disease causing unmistakable illness which could be assigned to no other cause, and which had resisted a fair trial of other curative measures.

12th May 1888.—I visited the patient to-day, and obtained this account of her. She says she is perfectly well except for flushes of heat and cold, which are very troublesome at times. She has never had any discharge of any sort since the operation, and the cicatrix is solid and free from disagreeable sensations. Every month she has pains in her back and abdomen for two days, as she used to have when menstruating. She states that since her marriage she has never had normal sexual feeling, and that in this respect no alteration has occurred. Sexual connexion previous to the operation was very painful, but since then has been unattended by pain. I think it may fairly confidently be stated, contrary to what many authorities write, that the operation does not destroy or deteriorate the sexual appetite. The patient is stouter, and looks well, though still somewhat anæmic.

CASE IV.—*Suprapubic Lithotomy on Patient in his 80th year; Recovery.*

M. W., æt. 80 next June. Complains of a constant pain in his bladder and penis, aggravated by passing water, which disturbs him so much at night that he can with difficulty get any rest.

History.—For many years he has had occasional trouble with his bladder, which passed off after resting and simple medicines until this time. He has had six attacks of rheumatic fever, and has been always a nervous man. On examining the bladder, it is found to contain a rough calculus of considerable size. The urine is plentiful—sp. gr. 1004, contains one-fourth albumen, and a large quantity of muco-pus. His feet and legs are considerably swollen, and breathing somewhat difficult. A mitral systolic murmur and some bronchial râles seem to be the cause of this. Considering the patient's great age, diseased condition, and previous history of recoveries from similar attacks, I decided meantime against operation. With milk diet, rest, and digitalis and iron, his general condition improved; but his bladder symptoms were not benefited by sedatives or washing out. After ten days of treatment it became evident to every one that his only chance lay in removing the stone, which he had anxiously wished for as soon as he knew it was there.

The operation was performed on 6th November 1887. Chloroform was administered, and the bladder injected with 8 ozs. of boracic lotion, which was retained by an assistant grasping the penis. The rectum was not distended. The abdominal wall over the bladder was divided in the linea alba, a long curved staff introduced into the bladder, and its point projected just above the pubic bone as a guide. This was readily exposed and the bladder wall opened, each side of the incision being caught by artery forceps. A finger followed by lithotomy forceps was introduced, and the stone easily grasped and removed. A drainage tube was left in the bladder from the wound, and the abdominal incision brought together by sutures. The old gentleman was put to bed, apparently no worse for the operation.

The same evening his temperature was 100°. In every other respect he was well. From this time his temperature never rose above normal. For the first week all went well. On the fifth day he was out of bed on the sofa. The urine all escaped by the open part of the wound and the tube. For some days the bowels had not acted well, and on the eighth day it was found necessary to clear his rectum of a fæcal mass. He was excited by this, and the following night slept little, wandering at times. Next day he developed delusions, thought his food was being poisoned, that his nurse and friends were plotting against his life, and would not take food from them. Notwithstanding this the wound steadily progressed, and on the twelfth day he passed some water per urethram. His delu-

sions continued; but in a month the wound was healed, and he had no difficulty with his bladder. At the end of the fifth week he was sent from home for change of air and scene, and his mental symptoms soon disappeared. He is now happy and comfortable, without bladder trouble of any kind.

Remarks.—The stone measures in its longest circumference $4\frac{1}{2}$ inches, shortest $3\frac{1}{2}$ inches, and is of oxalate of lime coated with phosphates. Its size is a very satisfactory one for crushing, but my reasons for selecting the cutting operation were that—1, less time would be required for the operation, and less anæsthetic consequently given; and, 2, that in passing an instrument I found it generally hitched at the prostate, which would have added to the risk of frequent introductions of the lithotrites and evacuating catheters. I found the operation with the aid of the staff point to cut down upon very much simplified. Without such a guide the operation is slower and more difficult. Why it should not always be used I am at a loss to understand, though I have never seen it suggested. Dilatation of the rectum in so old a man would surely be unsafe.

(To be continued.)

VII.—VALEDICTORY ADDRESS. DELIVERED TO THE EDINBURGH OBSTETRICAL SOCIETY, 26TH OCTOBER 1887.

By J. HALLIDAY CROOM, M.D., F.R.C.P.E., F.R.S.E., Physician to, and Clinical Lecturer on Diseases of Women, Royal Infirmary; Physician, Royal Maternity Hospital; Examiner in Midwifery, University; and Lecturer on Midwifery and Diseases of Women, School of Medicine, Edinburgh.

TO-NIGHT I have the double duty to perform—to open the forty-ninth session of our Society, and to restore to you the trust which you so generously placed in my hands two years ago, when you conferred on me the honour of occupying the presidential chair.

In doing so, I desire, *first* and *specially*, to express how deeply grateful I am to you for permitting me to enjoy this honour, than which I aspire to none higher, and to thank you for all the courtesy and consideration I have received from you during my tenure of office. Our Society has all but entered on its Jubilee, and I leave it to the abler pen and worthier lips of my successor, who will indeed be our Jubilee president, to review its past and pronounce over it, as he is so well able to do, a graceful eulogium. Mine is a simpler task; my retrospect, for I take it that such is my duty, goes not further back than the period I have occupied this chair.

The past year has been even more fertile than some of its predecessors in the amount of excellent, original, clinical, and critical work which the Fellows have accomplished, and I do not

think I shall be accused of exaggeration when I claim for our Transactions a place second to no other similar society.

Our meetings have been unusually well attended, and the discussions have been lively and to the point. It is certainly a most desirable feature in our Society that the papers read are not unduly long, and that the critical remarks are short and sharp. The custom which we have always adopted of having our discussion reported in detail has ever seemed to me most useful, as by this means the varying opinions on any special subject are permanently recorded, and much interesting matter may be gained from them which would otherwise be lost.

The past year is noteworthy, because in it we have had the largest accession of members compared with any previous session in our history as a Society, no less than 42 new Fellows having been elected—a very substantial addition not less to our membership than our funds.

The Fellowship of our Society now amounts to 390,—40 honorary; 92 corresponding; 258 ordinary.

If I may venture to cast a horoscope, our Society will emerge from the present modest room which has so long sheltered it into a hall more worthy of it. Its meetings will no longer be round this familiar table, but conducted with a dignity and solemnity befitting its age and importance. Perhaps, if indeed the march of political events be not too rapid, some of the younger Fellows may see it develop into a *Royal Society*, where, with accumulating wealth, it will be able to foster original research by handsome grants.

Obstetrics will then have developed into an *accurate science*. The advance of sanitation and social science will have rid our country of epidemics and made pelvic deformities curiosities of the past. Improving morals and the spread of higher self-control will have deprived the profession of its most cherished etiological factor in the production of disease and, when obscure symptoms do present themselves, they will not be attributable *then*, as invariably they are *now*, to syphilis. Abdominal surgery will have achieved its highest triumph, and when, now and again at rare intervals, an insuperable obstruction to delivery does occur, a living child will be removed through an abdominal incision with as much safety to the mother as an ovarian tumour can be now. Perhaps by that time ovariectomy itself will have disappeared from the list of justifiable operations, and cancer and ovarian tumour will be dissipated, as it is now proposed to disintegrate fibroids.

It may be that the then President, with a grace of manner and a firm but gentle assertion, unknown to the present occupant, may have to control the deliberations of a mixed assembly, composed in great measure of what we, at present, regard as the gentler sex. Then, Gentlemen, we may rest assured that the attractions of the

Obstetrical Society will, for young physicians, outweigh all others; the meetings will be weekly instead of monthly, enlivened by the most sparkling debate; and when some of the present Fellows, then hoary with age, forgetting the change and mindful only of the past, should read a lengthy and dull dissertation, as Lord Cockburn said of a prolix pleader, "exhausting time and encroaching on eternity," his lucubration will be welcomed rather than otherwise, as affording a suitable interlude for an interesting conversation between a stern obstetrician and an engaging and attractive gynaecologist. Whether this Utopia will be reached or not; whether, if possible, it were desirable, time will tell. For us our work is in the present, and, professionally, we have to deal with it alone.

During the past two years our department has not stood still. There have been rapid changes in opinion and development in art. Our knowledge of the phenomena of labour, though far from perfect, is yet slowly and surely being placed on a firmer basis; and in the development of these problems, nothing has shed more light than recent research in the anatomy of labour, and in this department, through the researches of Barbour, our Society has taken a foremost part. The possibility of work in this direction seems as yet unlimited, and to those who have the ability and time, and the good fortune to secure the material, it seems certain that in no direction will honest work have a more ample reward.

The physiology of the uterus, more especially in relation to its innervation and electrical phenomena, is a field full of great expectation, and in this direction, through the work of Milne Murray, our Society has contributed a lasting addition; while in pathology, the basis of all accurate treatment, the work of Berry Hart, on extrauterine pregnancy, stands prominently forward as a research of a peculiarly interesting nature.

To Dr Foulis we are indebted for ventilating afresh the subject of axis-traction forceps. This is not the time for me to express any opinion on the ingenious form of instruments which he has invented. But I desire to avail myself of the opportunity thus afforded of saying a single word with regard to the axis-traction forceps generally. Of their value no one can possibly have a higher estimate. Yet it seems to me that sufficient attention is not paid to one point, viz., that, with increased power in a proper axis, efforts at extraction should be modified. For the power we possess with the axis-traction is so much greater than with ordinary forceps, that infinitely more care in the employment of this force must be observed by the operator, otherwise, as one draws from the instrument an indication of the proper line of traction for each particular pelvis, we are enabled to expend our efforts in traction to the best advantage and by the same means, and, at the same time, to recognise the limits of SAFE traction. The instrument,

accordingly, should be regarded primarily as a means of economising the power of the operator, and of materially diminishing the risk of the patient from excessive injudicious force. Hence, therefore, the limits of safe traction with this instrument are narrower than with the older form, and therefore it should be strongly insisted on that no operator is justified in working up to the mechanical limits of this forceps; but, on the contrary, having ascertained the limits of safe traction earlier with this instrument than with any of its predecessors, he is bound, in consideration for the mother, to proceed to some of the sacrificial methods of delivery; and the one which seems best suited for such cases, and a method which gets scant recognition, is to perforate the head while still grasped by the forceps, and continue traction in the proper axis with the traction rods.

Nothing, I may safely say, has attracted the attention of gynaecologists more, during the past year, than the application of powerful currents of electricity for the modification of symptoms and disintegration of fibroid tumours of the uterus.

The application of electricity for such purposes is by no means a novelty. It has been tried in various ways and by various operators for many years, and though now and again encouraging results have been secured, it has never as yet scored a brilliant success. Whether Apostoli's method is to carry off the palm and mark an epoch in uterine surgery remains to be seen. Like every other novelty in medicine, it is at present being done to death. The special feature of Apostoli's teaching and practice is the use of currents of high intensity, carefully measured by specially constructed instruments, and brought directly in contact with the offending structure by one or other pole of the battery. I venture to think it specially desirable that this latter feature, which Apostoli terms the unipolar method, should be primarily insisted on and appreciated. The diverse effects of the two poles admits of simple demonstration, and it is a characteristic feature of Apostoli's treatment that he employs the astringent effects of the one pole or the disintegrating effects of the other, according as the circumstances of each individual can demand.

In all former attempts to utilize electricity for such purposes, no device was adopted to admit of the selective procedure; and the merits and success of Apostoli's method depend largely on the adoption of a large external surface electrode composed of wet clay, by means of which the one is dispersed with least inconvenience to the patient.

As yet it is premature to offer any opinion as to the ultimate results of this method of treatment. Theoretically, it seems to commend itself. Like others, I am endeavouring to give the ingenious suggestion of Apostoli a fair trial, and am waiting with interest the issue of the cases in which it has been employed. At the same time, it cannot be too anxiously insisted on

that the operation is one involving very grave risk to the patient, and demanding very exceptional care on the part of the physician.

The last few years have brought varying fortune to antiseptics in midwifery and gynæcology. That antiseptics founded on a germ theory have been proved to be unnecessary to brilliant success in abdominal surgery is a fact which Mr Tait has placed beyond the region of dispute. His phenomenal success, without the adoption of any antiseptic precaution at all, cannot fail to arrest the attention of all of us interested in this department. This fact is the more striking when we consider that, while in one department, and that one of the most important, abdominal surgery, antiseptics properly so called are to say the least superfluous, in another, viz., obstetrics, they are not only useful, but essential. It is an unquestionable fact that the introduction of antiseptics and the careful and straightforward application of them constitutes the greatest stride in midwifery since the introduction of the forceps. I question if the adoption of antiseptics in midwifery is not the most successful practical achievement of modern medicine. Whatever may be the exact explanation of the proved uselessness, not to say absolute danger of antiseptics in abdominal surgery,—and to those who are desirous of pursuing this question I refer them to Mr Tait's remarkable essay in the *New York Medical Journal*,—the fact remains that their adoption in obstetrics has been as sure as the results have been remarkable. You are all familiar with the ravages puerperal fever used to make in our hospitals. Every one knows that at one time a mortality of 15 to 20 per cent. was by no means uncommon.

Epidemics of puerperal fever in Germany, France, London, and Dublin are facts with which the most superficial student of obstetrics is well acquainted. In no department of medicine has septicaemia run such wanton riot. Will any one dare to say that antiseptics have not entirely and absolutely revolutionized all this? How else explain the recent history of such hospitals as those in Paris, Prague, Copenhagen, London, and Edinburgh, where as a matter of fact the disease has been practically stamped out. I doubt if there is a more striking practical fact in the whole history of medicine than that in the hospitals I have just mentioned, where, without any external or internal change in the hospitals except the introduction of antiseptics, the mortality should have fallen from 20 per cent. to almost *nil*. Not only have antiseptics almost entirely annihilated puerperal fever, but they have rendered maternity hospitals, against which there has been and still is an outcry, practically as safe as private dwellings. It remains for some Fellow of this Society to confer a lasting boon on the Maternity, by placing this fact as fairly before the non-professional public as the converse has been, and remove the stigma which has always attached to lying-in hospitals. To many of the Fellows of

this Society abdominal surgery has but a limited interest, but to every Fellow the question of puerperal septicæmia is one of the deepest concern; and the victory won by antiseptics over our direct foe is matter for which the author of the system, Sir Joseph Lister, deserves the thanks of every practitioner of the art.

Among the moot points which present themselves to the practical obstetrician at the present time, there is one which I honestly believe will require to be faced by this and similar societies sooner or later. It is a subject upon which I desire to speak with reserve and circumspection. I refer to the growing prevalence in our country of artificial interference with the propagation of the species. That this is the case to an enormous extent in all classes of society is a fact beyond any kind of dispute. It is a question which strikes at the root of our social system, which, to a very considerable extent, affects the morals of our people, and which is the undoubted cause of many functional and organic troubles amongst women. The question is one which has been by no means settled by our profession. Such practices have at least the tacit sanction of many; others put the matter aside as Malthusian doctrine, apparently not at all sure whether Mr Malthus were a charlatan whose doctrines were scandalous and not fit for discussion, or a scientific man whose theories were too recondite for the average intellect. As his biographer says, "Malthus was the best abused man of his age. He was denounced as a man who defended smallpox, slavery, child-murder. He was assailed as a man who was hostile to soup-kitchens, early marriage, and parish allowance; who had the imprudence to marry after preaching against the evils of a family; who thought the world so badly governed that the best actions do the most harm; who, in short, took all romance out of life, and preached a dull sermon on the thread-bare text, "Vanity of vanities, all is vanity." The work of Malthus was second in importance only to that of Adam Smith's, and his work on over-population stands in the same relation to over-population as that of Smith's *Wealth of Nations* does to free-trade.

Not that Malthus's work can be classed with that of Adam Smith. The latter was the founder of a science, the science of political economy, in as real a sense as Newton was the founder of physical astronomy. To any one reading it must be evident that Malthus was not the man to found a science; competent judges, indeed, tell us that his Political Economy is far from a masterful work, and is remembered only from the fact it is by the author of the great essay on Population. Malthus's work, though less original, was hardly less valuable, and consisted in the rediscovery of the forgotten truths insisted on in that essay. Malthus dealt with morals and philanthropy on their practical side. He had to do with political economy only because it is the science of a large part of man's happiness. The truth upon which he constantly insisted was, that the way to happiness lies through self-control;

and whatever claims he has to be called a moralist and economist arise from his application of this truth not merely to the individual, but to the nation. Society, he insisted, "is master of its own fate." The neglected truth which Malthus brought to light may thus be stated:—

Population tends to grow indefinitely, and is in general restrained in its growth only through difficulty in obtaining food for its increasing numbers; for the production of food on a limited area cannot be indefinitely increased. Under favourable circumstances, population doubles itself in twenty-five years. In most countries food cannot be increased to meet the possible increase of the population, and the population must be kept down to the level of the food. There are only two ways in which this can be done, either the number of deaths must be increased, or the number of births diminished, as compared to what would be if the population had room to increase without limit.

The former is what Malthus calls the positive check, the latter the preventive check, when population is approximately stationary; one or both of these checks must be in action. Suppose the case of a country where population does not increase being kept down to the level of subsistence, and yet the number of births as great as in a population doubling in twenty-five years, it follows that the deaths will be due to want of food; they will be those chiefly of children dying from diseases caused by want of sufficient nourishment. In this the positive or destructive check acts alone. Suppose, on the other hand, the circumstance as to the supply of food the same, but the ways of the people such that the preventive check acts alone; the meaning of this is that the population will be kept within the limits of subsistence by diminishing the number of births, that men will not incur the responsibility of bringing children into the world without a fair prospect of being able to bring them up in health and comfort. Malthus's position was quite apart from the devices and arts such as I have already hinted at. What he in effect says is:—"Every desire has its proper place and proper gratification if we can find them. The passions are the materials out of which happiness is made; they are therefore to be regulated and harmonized,—they are not to be extinguished or even reduced in intensity. After the desire for food the desire for marriage is the most powerful and general of our desires. To say, therefore, that the desire for marriage is to be restrained and regulated, is not to treat it exceptionally or deny its naturalness." The following quotation will show that Malthus, though wiser, was not colder than his fellows, although he did not marry till late, just before becoming a professor in India.

"When we contemplate the constant and severe toil of the greatest part of mankind, it is impossible not to be forcibly impressed with the reflection, that the sources of human happiness

would be most cruelly diminished if the prospects of a good meal or a warm house and a comfortable fireside in the evening were not incitements sufficiently vivid to give interest and cheerfulness to the labours and privations of the day. Perhaps there is scarcely a man who has once experienced the genuine delight of virtuous love, however great his intellectual pleasures may have been, who does not look back to that period as the sunny spot in his whole life where his imaginations love to bask, which he recollects and contemplates with fondest regret, and which he would most wish to live over again."

The question of over-population and the misery and wretchedness which follow in its train is a gigantic one. Malthus contended for an earthly paradise, a large actual population and a state of society in which abject poverty and dependence are comparatively but little known,—a society, in fact, where moral restraint is perfect.

Many have assumed that there must be self-acting checks to population, the nature of which is not yet understood; but there is no sufficient ground for this belief. The only really self-acting check is want of food. The great destroyers of population history tells of are war, pestilence, famine. All these, however are ceasing to act. Wars now are not wars of extermination, and women and children are spared. Improved sanitary conditions and increased medical skill have, in great degree, checked pestilence. The increase of commercial facilities have made famine in civilized countries impossible. This, however, only hastens the time when the difficulty will be felt from increasing population. How to deal with such a matter does not fall to be discussed here.

Let us not, as a profession and as members of this Society at least, give any sanction to methods adopted by the laity, and connived at by many in the profession, of interfering with a normal function by means other than by self-regulation and control,—means which insidiously destroy virtue and sexual morality, and which, in the experience of any one who has paid any attention to the matter, are the cause of endless physical and mental ill-health to our married women. That under certain exceptional circumstances even these means are necessary and legitimate, most practical men must admit, and it is our duty as a profession to lay down a definite and clear rule for interference with conception as now exists for the induction of abortion or premature labour. The question is, at all events, ripe for discussion.

Gentlemen, I have finished though not exhausted the subject, and thus very imperfectly discharged my last duty as your President. In vacating this chair, I heartily congratulate you on the choice of my successor, and I cordially welcome Dr Underhill to a position which the unanimous voice of the Society declares he is so well qualified to adorn.

Part Second.

REVIEWS.

A Text-Book of Physiology. By JOHN GRAY M'KENDRICK, M.D., LL.D., F.R.S., Professor of the Institutes of Medicine in the University of Glasgow, Fellow of the Royal College of Physicians of Edinburgh. Including *Histology*. By PHILIPP STÖHR, M.D., of the University of Wurzburg. In two Volumes. Vol. I., *General Physiology*. Glasgow: James Maclehose & Sons: 1888.

THOSE familiar with Professor M'Kendrick's excellent *Outlines of Physiology* will hail with pleasure the appearance of the first volume of the more fully developed *Text-Book*.

A perusal of the work shows that the author has devoted to it the same painstaking and accurate care which so markedly characterized his former work. We have on every page evidence that the book is the outcome of a life's study of the whole range of physiology in its widest bearings.

In the 500 pages of this first volume on General Physiology the author has to a certain extent followed the plan of the first 150 pages of the "Outlines." Commencing with a full statement of the nature and objects of physiology, he passes to consider matter and energy so far as they bear upon physiology, and to a discussion of the relationships of the science to general biology. He then proceeds to the consideration of the chemistry of the animal body, to which he devotes 166 pages.

In this section, the chapters on the Pigments of the Body and on Fermentation are more especially of note. We have not seen in any text-book so full and clear a description of the various colouring matters, while the chromo-lithograph of their absorption spectra which accompanies the work is an exceedingly useful addition. In the chapter on Fermentation we have a most careful historical account of the gradual advance of our knowledge of this most important process. In discussing the nature of the action of ferments, the author has perhaps failed to emphasize sufficiently the very different character of the action of organized and unorganized ferments, while he dismisses somewhat summarily the view that the products of the fermentative action of the organized ferments are of the nature of decomposition products of protoplasmic activity.

In the chapter on the Chemical Reactions in the Living Organism, the more modern views as to the rôle of oxygen in the metabolic processes appear to be somewhat ignored, although Pflüger's admirable paper, in the tenth volume of his *Archiv*, is alluded to in another part of this section. In Section B. of the same

chapter we are somewhat surprised to see no account of Ehrlich's recent interesting observation on the reduction processes in the animal body. Reviewing this section as a whole, we cannot help feeling that it is too detailed for a students' text-book, and that such a chapter near the commencement of a work on physiology may be apt to create in the mind of the student a distaste for a science which must appear to him alike difficult and uninteresting.

In the next section, which deals with the physiology of the tissues, the author leads up to the consideration of the histology of the adult tissues through the study of the early stages of development, an innovation which appears to us most judicious. Professor Mc Kendrick is to be congratulated on having had so entirely at his disposal the useful "*Lehrbuch der Histologie*" of Professor Stöhr, which he has incorporated in his work. In the hasty perusal which we have been able to give this part of the book, one or two points strike us. In the description of karyokinesis, p. 213, the author curiously omits the consideration of the achromatin spindle, although its relationship to nuclear division is alluded to in the discussion on the nature of the discharge of the polar bodies of the ovum, p. 228. We cannot help feeling that the introduction with the text of thirty-five pages of description of the methods of microscopic research, between the account of the segmentation of the ovum and the consideration of the histology of the tissues, is somewhat unwise.

In this section of the work, undoubtedly the most interesting chapter is that upon the "Physiological Basis of Heredity." In it we have a full and careful statement of the various theories advanced in regard to this most difficult of all biological problems; and as a result of the criticism to which he subjects these, the author is led to give his support to a somewhat widened modification of Strasburger's theory.

Section IV. is devoted to the study of the contractile tissues; and in this the physiology of muscle is most fully dealt with. At the end of the section is a very complete account of the phenomena of the electric fishes, in which the results of the most recent researches are introduced.

We have already said that the text-book is obviously the work of an able, accomplished, and painstaking physiologist.

The publishers deserve all credit for the admirable way in which the book is got up. The illustrations are all that could be desired, while the letterpress, divided into sections and subdivided into short chapters, is clear and good.

Whether it will prove a useful book to the ordinary medical student is a matter which is open to discussion. With such a profuse mass of details, it is somewhat to be feared that the great and important—the vital points of the science—may run the risk of being overlooked. Of course under the direction of a good teacher

this danger would be obviated. To the real student of physiology, and to the scientific practitioner, the work is one of the greatest usefulness and value, and we cordially wish it all success.

Transactions of the College of Physicians of Philadelphia. Third Series. Vol. IX. Philadelphia: P. Blakiston, Son, & Co.: 1887.

THE greater part of this thick quarto volume is taken up with affairs peculiar to the College itself, and of but slight interest to outsiders. The Centennial meeting of the Philadelphia College of Physicians took place on 4th January 1887, and the speeches and commemorative addresses befitting the occasion are recorded in the present volume, along with lists of present, and obituary notices of past, members.

Towards the end, some 17 scientific papers read before the College are printed. They are of varying length and interest. One of them is by Dr Mears, on "Closure of the Jaws and its Treatment." In this paper the author, after reviewing and showing objections to the recognised modes of dealing with contracted jaws, advocates two new plans,—(1.) When closure of jaws is due to firm external cicatricial bands, he advocates slow division of the bands by a ligature gradually tightened day by day. A needle carrying the thread is passed in at the angle of the mouth, carried back between the cicatrix and skin, and brought out inside the mouth near the last molar tooth. Stretching by a mouth-gag afterwards is advised. (2.) When ankylosis of the jaw to the skull exists, the ascending ramus with condyle and coronoid process is to be excised from the mouth as follows:—"A straight, sharp-pointed bistoury is introduced beneath the masseter muscle on a level with the last molar tooth of the lower jaw. Into the wound thus made the blade of an Adams' saw is passed, and the ramus sawn through. The periosteum, with the overlying masseter muscle, is raised by the periosteal elevator, and the wound thus enlarged. The insertion of the temporal muscle is now divided by a probe-pointed bistoury. The tissues on the inner surface are separated by the elevator, the bone seized by the lion-jawed forceps, and an effort made to dislodge it by forcibly twisting it outward. If it yields at the neck of the condyle, the process is afterwards chiselled out. If sufficient space is acquired without removal of the firmly ankylosed process, it is permitted to remain, the object being to provide ample space for the formation of an artificial joint. Section of the masseter muscle is made if its tense condition demands it. Hæmorrhage which arises from the division of muscular arterial branches, and possibly of the inferior dental artery, is controlled by pressure effected by packing the wound-cavity with sponges. Wounding of the internal maxillary artery is to be avoided by careful use of

the instrument in close contact with the bone in the upper and inner portions. Section of the inferior dental nerve is liable to occur, producing anæsthesia in the teeth and regions of the chin supplied by its mental branch. The wound-cavity is packed with iodoform gauze, seven and a half per cent., and renewed every third day. Manipulation with the mouth-gag is instituted at the expiration of a week, and maintained for a varying period—from six to eight weeks or longer—according to the requirements of the case.”

Another article of special interest is an account of “Innominate Aneurism treated by Simultaneous Distal Ligation of the Right Common Carotid and Subclavian Arteries, with Recovery,” by Prof. T. Ashurst, jun., reported by Dr H. R. Wharton.—Patient, an old soldier, æt. 42. The aneurism at the supra-sternal notch extended two inches outward from the middle line. There was no doubt as to its diagnosis. The vessels were tied with a catgut ligature. Improvement began in a few days and continued till the condition was practically cured. Simultaneous rather than consecutive ligation is advocated.

Annales Medico-Chirurgicales. December 1887.

THIS monthly magazine continues to supply its readers with interesting material, both original and abstracted.

A Practical Treatise on Materia Medica and Therapeutics. By ROBERTS BARTHOLOW, M.A., M.D., LL.D., Professor of Materia Medica, General Therapeutics, and Hygiene in the Jefferson Medical College of Philadelphia, etc., etc. Sixth Edition. London: H. K. Lewis: 1888.

THIS is one of the standard American works on *Materia Medica*. It has long been known on this side of the Atlantic as a learned and able treatise, and we have much pleasure in commending to our readers this *sixth* edition, which contains much new matter, and is well brought up to date, including those new medicines which have lately been introduced into medical practice.

Lessons on Prescriptions and the Art of Prescribing. By W. HANDSEL GRIFFITHS, Ph.D., etc. New Edition, adapted to the British Pharmacopœia of 1885. London: Macmillan & Co.: 1888.

WE have expressed our opinion on a former occasion of this work. The examples are not to be recommended as models of prescription writing. Croton oil is best administered dissolved in olive oil, and yet we are told (page 92), “Croton oil should not be administered in the fluid form.”

Manuel de Médecine Opératoire de J. F. MALGAIGNE. Par LÉON LE FORT, Professeur de clinique chirurgicale à la Faculté de médecine de Paris. Première Partie, Opérations Générales, avec 352 figures intercalées dans le texte.

It is unfortunate that the value of a work otherwise so excellent as this is should be marred by a determined opposition to the principles of antiseptic surgery. Professor le Fort is imbued with an idea that all epidemics, puerperal fever, and suppuration in wounds, are due to a "contagion," while the theory of germs as the cause of putrefaction and other fermentations he considers to be nonsense. Of what nature his "contagion" is he does not pretend to say. It does seem remarkable that he should overthrow for a mere phantasy the now thoroughly worked out system of the germ origin of disease.

As we hold that the clear understanding of this question is the very key-note of the principles and practice of modern surgery, we cannot recommend this work as a safe guide to students.

Those, however, who wish to have before them a clear exposition of French surgical practice based on pre-antiseptic principles will do well to consult this book.

The illustrations and letterpress are alike excellent.

Lectures on the Surgical Disorders of the Urinary Organs. By REGINALD HARRISON, F.R.C.S. London: J. & A. Churchill: 1887.

WE have to welcome the third edition of these lectures even more cordially than we did the others. They give, in simple and concise language, the author's own experience of a class of disorders, in the treatment of which his name is held justly high. Many capital illustrations and descriptive cases help to make the text clear.

The remarks on fever following urethral operations are most interesting. Mr Harrison has found that external urethrotomy, combined with internal, prevents the access of fever. This he accounts for by the urine passing freely away by the external wound, and so not coming in contact with the pent-up wound of the internal section. We certainly believe that this combined operation will prevent urinary fever; but is it not possible that the external urethrotomy may carry with it such an increased risk to life as to counterbalance the advantages gained by preventing fever? The simple procedure of tapping the bladder from the perineum through the prostate, with a trocar and canula, in those cases of irritation where the suffering is intense and continuous and has baffled ordinary treatment, deserves the thoughtful consideration of the profession, and we congratulate Mr Harrison on suggesting such an important addition to the treatment of these cases. The lectures have been rewritten and enlarged.

The Middlesex Hospital—Reports of the Medical, Surgical, and Pathological Registrars for the Year 1886. London: H. K. Lewis: 1887.

THESE reports form a valuable and interesting record of some of the more important cases treated in the Middlesex Hospital in 1886. The pity is that more hospitals, by furnishing such like reports, do not follow the same good example. North of the Tweed, at any rate, we seem to have neglected this line of work.

In the present volume the Hospital cases are grouped, analyzed, and tabulated in such a way as fully to justify the title "Hospital Report." Its more usual form consists mainly of scientific papers by members of the Hospital staff. When these, as they generally do, bear only on a few of the cases, medical journals would seem a more appropriate channel for their publication.

The Journal of Anatomy and Physiology, Normal and Pathological.
Vol. XXII. Part iii. April 1888.

THIS number is chiefly occupied by papers of interest to the pure anatomist rather than to the general practitioner. Thus Dr Shufeldt has an elaborate communication on the osteology of various North American birds; Professor D. J. Cunningham discusses very fully the homology and nerve supply of the *Musculus sternalis*; and Professor Struthers continues his account of the anatomy of a Finner whale (*Megaptera longimana*), which was captured in the Firth of Tay a few years ago.

Dr Frederick Mott has an article on the "Microscopical Examination of Clarke's Column in Man, the Monkey, and the Dog." The principal object of Dr Mott's investigations was to ascertain whether any new light could be thrown upon the relation between Clarke's column and the fine medullated fibres of the visceral and vascular systems described by Dr Gaskell. Dr Mott's work confirms the original view of Lockhart Clarke, that the posterior vesicular columns of cells are connected with the direct cerebellar tract. He also considers that they are connected with the inner set of fibres of the posterior root. In man Clarke's column is found in all *transverse* sections of the cord, from the eighth dorsal to the second lumbar. From the sixth dorsal to the second dorsal only a few transverse sections show cells. There are none in the cervical enlargement or below the second lumbar, but a few exist from the first to the third cervical. Dr Mott describes the pathological appearances of the spinal cord in—

1st, Cases of injury to the roots of the cauda equina.

2nd, Cases of injury in the region of Clarke's column.

These cases confirmed the usual view as to the connexion of the cells of Clarke's column with the direct cerebellar tract. He failed

to demonstrate any connexion between the small fibres of Gaskell and the cells of Clarke's column.

In a paper on "The Movements of the Ankle-Joint," Mr W. Arbuthnot Lane objects to some of the current descriptions of the anatomy and physiology of the ankle-joint, and asserts that their acceptance "has led to erroneous methods of diagnosis and of treatment of fractures of the tibia and fibula occurring in the vicinity of the ankle-joint." He disputes the accuracy of the view that the astragalus can be adducted and abducted when the ankle-joint is extended. He holds that the only movements of the foot that can occur at the ankle-joint are flexion and extension. He admits that the foot can be freely adducted and abducted upon the astragalus when the foot is extended, while these movements cannot occur when it is flexed. He attributes the fixation of the foot in the latter case to the tension of various ligaments.

Mr J. Greig Smith contributes a "Note on the Action of the Ureters as observed during an Operation for the Removal of an Abdominal Tumour." The case was one in which the whole length of the ureters was exposed. A small knob seemed to arise at the top of the ureter, and rapidly to descend to the bladder. The knob passed from the kidney to the bladder in about four seconds. As a rule, the contraction of the two ureters was synchronous.

Watts' Dictionary of Chemistry. Revised and Entirely Rewritten. By H. FORSTER MORLEY, M.A., D.Sc., Fellow of, and late Assistant Professor of Chemistry in, University College, London; and M. M. PATTISON MUIR, M.A., Fellow and Prælector in Chemistry, of Gonville and Caius College, Cambridge. Vol. I. London: Longmans, Green, & Co.: 1888.

WE are glad to see a new edition of this work, undoubtedly the most valuable dictionary of chemistry in the English language. The work is to be published in *four* volumes. This edition will differ from the previous one in this respect, that Chemical Technology will appear in a companion volume, edited by Professor Thorpe. In various ways this will be an improvement.

No science has more advanced in recent years than Chemistry. It is twenty-five years since the commencement of the previous edition, and seven years since the last supplement was published. A new edition was therefore essential; in fact, Watts before his lamented death had actually commenced the present volume. It is fortunate that the book is to be edited by such able chemists as Dr Forster Morley and Mr Pattison Muir.

It is an able and learned work. It contains all the latest information, and is worthy of a place in the libraries of all who take an interest in chemical science.

The Medico-Chirurgical Tariffs prepared for the late Shropshire Ethical Branch of the British Medical Association. By JUKES DE STYRAP, M.K.Q.C.P., etc. The Fourth Edition, Revised and Enlarged. London: H. K. Lewis, 136 Gower Street: 1888.

WE welcome this, the fourth edition of this excellent tariff, as it has been some time out of print. The whole tone of the work is admirable, aiming as it does to teach the young practitioner promptitude, business habits, and consideration both for his own position and the circumstances of his patient.

From the motto, "Accipe dum dolet," down to the last page there is much wisdom and common sense in the principles inculcated. On the whole, we would say the tariff has a leaning to mercy's side. It goes on the principle of taking the patient's house rent as a sort of guide to the kind of fee he should be expected to pay, but takes in no one over £100 a year of rent; so it does not profess to be a guide as to how the wealthy should be charged by their ordinary attendant, or how consultants should estimate the value of their own services. We are glad to find that the genial and courteous author is now restored to health.

Doctors and Doctors: Some Curious Chapters in Medical History and Quackery. By GRAHAM EVERETT, Author of "English Caricaturists and Graphic Humorists of the Nineteenth Century." London: S. Sonnenschein, Lowrey, & Co.: 1888.

ONE of the most curious phases of the mental condition of society in the present day is its morbid curiosity, its love of the horrors of the hospital, the lying-in chamber, and the dissecting-room. Nothing more utterly repulsive and disgusting to a healthy mind can well be imagined than the present-day love of talking of, reading, chatting, and discussing the purely physical details of the sick-bed and the pain of poor fellow-creatures. No one is safe; my lady has to inspect Giles's bad leg, and hear about Mrs Hodge's twins or triplets; the public curiosity battens on the sufferings of a dying emperor. Cancer and its cures, wombs and their displacements, are the commonplaces of conversation, and a poor doctor who sees enough of the grim reality finds it hard to eat his dinner or read his newspaper without that perennial shop.

The book we are noticing is a *melange* of medical details and anecdotes, told with a fairly facile pen, and collected from the note-books, which had evidently been used to accumulate information in out of the way corners of caricature and gossip. Nearly all the tales are to the disadvantage of the medical profession, and there is an element of vulgarity, not exactly coarseness, but pettiness and lowness of aim, in all the witticisms. Wilkie Collins has a portrait of a fashionable physician, who prescribes for Lady

Lundie; it is quoted, and shines as quite a pleasantry by contrast; while the motto on the title-page, two lines from George Eliot, is quite a relief. It is as follows:—"The next day Mr Gambit was told that Lydgate went about saying physic was of no use." "Indeed," said he, lifting his eyebrows with cautious surprise (he was a stout, husky man, with a large ring on his fourth finger); "How will he cure his patients, then?"

The chapter on "Some more Old Patients" contains some terrible cases intended to illustrate medical science in England in 1737. The administration of crude mercury in two-pound doses by Thomas Dover, M.B., which may stand for either Bachelor of Medicine or Medical Bungler. (This is one of the author's jokes.) The death of Queen Caroline in 1737 is surely not a fair specimen. It was a case of hernia, treated by four of the best physicians in the land with blisters and the lancet, Daffy's elixir, musk water, usquebagh, snakeroot, and Sir Walter Raleigh's cordial. Truly, the century and a half since then have done much for medical science.

The Vanguard. The Monthly Paper of the Church of England Purity Society. May 1888.

THIS number contains an article, entitled "The Quack Impostor," on a subject to which it is right that we should allude.

The article in question refers to one of those cases so often before exposed in public and discussed in medical papers, of imposition and extortion by laymen professing to have special skill in diagnosis and treatment of diseases of the generative organs.

Among others, the late Dr Courtenay, in his letters as "Detector" to the *Medical Circular*, which were afterwards republished as *Revelations of Quacks and Quackery*, completely exposed all the devices employed in this nefarious trade, and even published a list of the firms engaged in it, including that of Nelson & Co., the defenders in the recent case.

In spite of these exposures, however, dupes seem as many and as willing as ever, and it becomes a serious question for the medical profession to consider whether it is not their duty to take counsel how they may best protect the physical and mental health of their fellow-citizens. Plainly, ordinary pamphlets of exposure are not enough. For one of such, circulated at a small cost, hundreds of the quacks' productions are distributed gratis, and it pays them well to do it.

A wider spread knowledge of the elementary laws of the physiology of generation is much needed. While it is becoming daily more recognised that the outlines of the physiology of the vital functions of digestion, respiration, circulation, and nutrition in general should be understood by all, why should those of reproduction be entirely left out and made such a mystery of? It cannot

be that want of this knowledge is of less moment than want of knowledge of other departments. Quite the reverse.

True, the knowledge should not be explained indiscriminately to all and sundry, but it should be available for parents and teachers. If they have no knowledge, how can they pass it on to the children under their care? The young people will often either make themselves acquainted in many strange ways with more than their parents dream of, and take much harm in so doing, or they may suffer in mind and body for want of the limited amount of knowledge they need.

Much might be done if the extensive organization of the Ambulance Societies, through their medical lecturers, were to take the matter in hand. If short, clear pamphlets on the subject were published under their auspices, and special lectures given to men, such sound knowledge as may be necessary would thus be put into the hands of men and women.

The Medical Societies and perhaps Corporations might do something to spread sound knowledge, as the writer in *The Vanguard* suggests. Individual practitioners naturally shrink from the charge of advertising which would be made if they wrote a popular work on this or on any professional subject, but no such charge would have weight against the work of a body of men endorsed by a Committee or President.

But besides the general sound foundation of physiology required, the fallacy must be met, that no regular practitioner is competent to treat cases of generative derangement. This is the great cry of the impostors: "The profession takes no heed of such cases, knows nothing about them, and only this great specialist can treat them." The general public believe all this, and swallow what they know nothing about in proportion to the vehemence of the assertion.

Is it not time that the profession made a distinct effort to enlighten the public in these matters? A great and united effort would be needed, but it could hardly fail.

Part Third.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION LXVII.—MEETING V.

Wednesday, 7th March 1888.—Dr JOHN SMITH, *President, in the Chair.*

I. ELECTION OF ORDINARY MEMBER.

Thomas Russell, L.F.P.S., Davidson's Mains, was elected an Ordinary Member of the Society.

II. EXHIBITION OF PATIENT.

Mr Cathcart showed a case of COLLES' FRACTURE produced by a blow directly backwards on the palm of the hand from a lever. Occurring in this way the fracture must have taken place by the breaking strain conveyed by the ligaments to the bone. The case therefore confirmed the view held by many, that the injury might, if it did not always, happen in this way. Another point of interest was that while the usual backward displacement was well marked, the lateral displacement of the hand to the radial side was absent, there being, if anything, a displacement towards the ulna instead. This seemed to confirm the view that the lateral displacement was due to the direction of the force, seeing that the accident generally happened by a person falling on the hand, and thus causing the bones of the forearm to be pushed to the ulnar side of the hand, *i.e.*, displacing the hand towards the radial side of the forearm.

III. DEMONSTRATIONS.

1. *Mr John Duncan* demonstrated—(1.) A method of applying SYPHON EXHAUSTION to cases of empyema. It consisted essentially of a large flat piece of plain rubber, a long rubber tube, and an air-tight pliable bag. The cavity was filled with warm boric lotion. The tube, also filled, was inserted into the cavity through a hole in the plain rubber cut smaller than itself, and an elastic bandage passed round the chest to keep the rubber in position. The air-tight bag was then filled, and by pressure at the bottom half emptied again. While the bag was brimming over the tube passed through its screw stopper was inserted into it and the stopper screwed home before the pressure was relaxed. The patient could walk about with the bag in his pocket. In one case in which this method had been tried it had worked very satisfactorily. When first commenced the capacity of the empyema cavity was thirty ounces. In one month it had diminished to a capacity of seven ounces under pressure (when the syphon action was reversed), five ounces when the bag was held on the same level with the chest, and two and a half ounces when the bag was lowered. After that the patient was allowed to have it under his own control, but by neglecting to adjust the bag properly when inserting the tube he allowed air to enter, put a stop to the syphon action, and enlarged the cavity, which was again reduced under proper treatment, and now contained only half an ounce when the syphon was acting, five ounces when reversed. (2.) A method of applying CAPILLARY DRAINAGE for the removal of thin fluids. This consisted in the use of threads of worsted which might be passed through a wide rubber tube. It had proved of great service in a case of abscesses of the thigh and abdomen connected with hip-disease. The abdominal abscess had opened into the ureter, and the whole of the

secretion of one kidney pouring through it for a time kept the bed constantly wet and the patient very uncomfortable. The urine was drained off by threads of worsted passing through a wide rubber tube which was passed deeply into the abscess and carried over the side of the bed to a vessel, into which the urine dripped at the rate of nearly thirty drops per minute. This method might be of use in all cases where the discharge was thin.

2. *Prof. Chiene* showed an uncontracted BLOOD-CLOT. It was obtained from a horse killed in the slaughter-house on October 28th, 1887. He had only once before seen a similar clot, and it was in the possession of Sir Joseph Lister.

Mr Cathcart said he had twice got blood from sheep killed in the slaughter-house which showed a similar condition.

IV. EXHIBITION OF PATHOLOGICAL SPECIMEN.

Dr A. Bruce showed a specimen and drawing of DIPHTHERITIC MEMBRANE of bladder and urethra. The patient had at one period of his life been operated on for stricture, and died after an attack of retention. The catheter was easily passed. After it was withdrawn some bleeding followed. At the post-mortem examination there was found a slight septic pyelitis of the kidneys. In the bladder there was a firm, dirty-yellow membrane adherent to the mucous membrane underneath. This extended along the urethra almost to the meatus. The mucous membrane appeared to be ulcerated.

V. ORIGINAL COMMUNICATION.

Dr Affleck read his paper ON THE CLINICAL VALUE OF TEMPERATURE OBSERVATIONS IN CERTAIN ACUTE AND CHRONIC DISEASES, which appears at page 7 of this Journal.

Dr Allan Jamieson considered it was of great importance that temperature observations should be recorded by the graphic method on charts. When noted down as figures they did not exhibit the peculiar characters seen in those adorning the walls. Observations taken only twice a day showed a sudden fall of temperature when febrile processes ended by crises, but it was interesting to notice that when more frequent observations were made, the fall was seen to be very gradual. This favoured the view which *Dr Affleck's* experience had led him to form regarding the value of antipyretic drugs, which were largely on the increase. So long as they did not know, except to a certain extent in a gross imperfect manner, what were the causes at work in a rise of temperature, to relieve the system by such remedies appeared to him to be dangerous. This did not apply to the cold wet pack, because it in a very short space of time rose to the temperature of the patient, and became to some extent a warm application.

While with kairin, thallin, etc., they certainly produced a fall of temperature very great at the time; which, it was argued, would be of advantage in relieving the patient, yet it was found that the temperature bounded up again to its former high level, and no permanent result had been proved to occur from their exhibition. Their failure, he thought, was explained by the gradual defervesence which frequent thermometric observations showed to occur. There was a curious point in regard to patients' temperatures which he had observed in hospital practice. On certain days a considerable number would show a sudden change, either a rise or an arrest of the descent then in progress. This was too universal to be attributed to anything but an influence which must be climatic in character. It was more particularly observed in typhoids and pneumonias. He had noted the temperatures of their typhoid cases against the meteorological observations, but had failed to make out any relationship. It did not appear to be due to sudden change in the wind, and he had been unable to determine whether the presence or absence of ozone had any influence. Another point of interest was the curiously high temperature which accompanied tonsillitis. There was no other affection of such a small surface which raised the temperature so high. A large diphtheritic deposit might even be accompanied by a sub-normal temperature if there was no parenchymatous tonsillitis along with it.

Dr Haddon, in the course of a lengthy criticism, advocated the graphic representation of the pulse-rate and respirations as well as temperature.

Dr Clouston said temperatures bore a very important relationship to the acuter forms of mental disease. In general paralysis they could almost tell the stage and course of the disease by the thermometric observations. In acute mania the temperature was sometimes very high. In puerperal cases the use of the thermometer was of the very highest importance. It was only by it that they could tell whether septicaemia was present or not. In most forms of insanity they got no help in the detection of complications from the patient; they had to depend on their own observations, and any means of diagnosis so simple and accurate as the thermometer was just what was needed. The use of the thermometer would often prevent such mistakes as the sending into asylums cases of scarlet fever, typhoid, fracture of the skull, and other conditions apt to be accompanied by mental symptoms. He had taken thermometric observations in mental disease for the last twenty years, and had found them of the utmost value.

Dr Allan Gray claimed for the thermometer a more important place than it had hitherto held. He thought it should be much more frequently used. He had lately been having two-hourly charts taken of various acute diseases in hospital, and they showed a great number of changes that were missed when the

temperature was taken only twice a day. Among other things he had observed an ague paroxysm with the morning and evening temperatures normal, but the afternoon temperature as high as 105° F. He considered that the high temperature of tonsillitis, to which Dr Jamieson referred, was explained by regarding the tonsillitis as a local exhibition of a general disorder.

Dr James Ritchie desired to emphasize the importance of frequent thermometric observations in doubtful cases. Without such care it might be easy to make errors of diagnosis in some cases of tubercular disease, and also of typhoid fever in the earlier stage when there is scarlatiniform rash and absence of diarrhoea. Temperature in health varied at different times in twenty-four hours, and the periods of highest and lowest temperature were not the same for all persons. These variations in health might modify the temperature in disease.

Dr James explained inverse temperatures on physiological grounds. The cycle of temperature was found to vary according to the diurnal or nocturnal habits of the patient. If the patient was in the habit of working by night and sleeping by day it was inverted. This had been shown by several observers, and he had made a series of observations on the night nurses in the Royal Infirmary showing that this was so. He had observed the same thing in the cases of night workers suffering from typhoid or phthisis. In connexion with this there was a practical point which was, that inasmuch as the temperature of the body showed a tendency to alter with the habit, it was well not to interfere too frequently with that. Miss Pringle had informed him that her night nurses did better with a long spell of night-work than an occasional night and day duty. In regard to the varying temperature of different parts of the body, Dr Affleck believed that it might be due to some nerve influence. It could, it seemed to him, be better explained by weakness of the circulation. Blood was constantly being heated in one part of the body and cooled in another. When the circulation was weak the transference of blood from heating to cooling parts was not so rapid as in the normal state, and thus differences in temperature would be found. He homologated what Drs Affleck and Jamieson had said in regard to antipyretics. The administration of these in large doses could not possibly be altogether favourable. The rise of temperature was in many cases salutary as evidencing a resistance on the part of the body to adverse influences within it. His practice was to give smaller doses of the antipyretics over a longer period.

Dr Smart attached very great importance to what had been said regarding antipyretics. It was a risky thing to bring down a high temperature too suddenly by such means. By doing so they were really doing violence to a natural law, which, for the time being, was a physiological compensative condition, though really pathological. They arrested the necessary changes of

metabolism, which must go on, and were in danger of bringing about a crisis which was not to be desired. Referring to the case of acute rheumatism with high post-mortem temperature, he said he had four similar cases under his care while taking charge of wards during the absence of his colleagues. In all of them the temperature steadily rose, notwithstanding the antipyretic in large doses, until it reached 109° F. or thereabouts, when death, preceded by acute delirium, supervened, the post-mortem temperature rising to 110° – 111° Fahr. Death took place generally within two hours after the temperature began continuously to rise. He was led to suspect the therapeutic agent which had been administered before he took charge of them. It was the salicylate of soda, and the amount given was about the same in all—from 250 to 280 grains. He believed it to be an agent of great toxic power, and had been led to introduce as a substitute the salicylate of phenol or salol, which, given in moderate and frequent doses, worked in harmony with physiological processes and reduced temperature satisfactorily. The object sought in giving antipyretics was, he believed, best attained by moderating the pyrexial condition so as to ward off hyperpyrexia; but in no case ought antipyretics to be persisted in, if temperature still rose, after they have been fairly tried.

SESSION LXVII.—MEETING VI.

Wednesday, 21st March 1888.—Dr JOHN SMITH, President, in the Chair.

ORIGINAL COMMUNICATIONS.

1. *Mr A. G. Miller* read his paper on THREE CASES OF NEPHROTOMY, WITH REMARKS, which appeared in vol. xxxiii. p. 1068 of this Journal.

Mr Cathcart thought *Mr Miller*, in speaking of “nephrotomy,” had not sufficiently drawn attention to the different kinds of disease for which the operation might be required. If the diseases were of a different character it seemed hardly right to lay down lines of treatment that might be suitable for them all. The particular treatment of a suppurating joint or organ, say the testis, would vary with the character of the disease. Incision in simple cases, probably excision or scraping out in tubercular. It would be generally accepted that the same doctrine was true for the kidney, the difference being that the one organ was not so easily removed as the other. He did not quite follow *Mr Miller* in his view, that the kidney in one of the cases should have been removed because of a septic abscess round it, unless one could say that the kidney itself was necrotic, and he did not gather that such was the case.

Mr Miller said he brought forward these cases mainly because they had been fatal, and to point out that the operation was not so harmless as was generally supposed. His deductions were from

these only, and he did not wish to lay down general principles for the performance of the operation.

2. *Dr Smart* described SOME FORMS OF UNDESCRIBED RESPIRATORY NEUROSES.

Dr G. A. Gibson gave expression to the pleasure with which he had listened to *Dr Smart's* communication, and to his regret that he had not been in time to hear the whole paper. He was of opinion that a simpler explanation might have been proposed for the phenomena represented in the third tracing shown by *Dr Smart*, and thought that exhaustion of the central nervous mechanism controlling the respiration would satisfactorily account for it. The tracing in question was characterized by a regular periodicity. Now, periodic respiration has been described as occurring in the frog under certain circumstances, in the dormouse when hybernating, in the dog when worn-out by prolonged exertion, and in man during the profound slumber which follows severe labour. The tracing to which he called attention had some resemblance to one given by *Mosso* in a recent work as the graphic representation of periodic variations in the respiration of a healthy but exhausted dog. Considerable discussion had been caused by the different attempts made to explain periodic respiration, and he was led to make a few remarks on the subject by *Dr Smart's* reference to the implication of the vaso-motor system in the symptoms which he described. Periodic breathing was seen in its most pronounced form in Cheyne-Stokes breathing. Since the classical explanation advanced by *Traube* and challenged by *Filehne*, the subject had received much attention, and many ingenious attempts had been made to solve the question of its causation by such authors as *Biot*, *Franck*, *Cuffer*, *Grasset*, *Rosenbach*, *Fano*, *Murri*, *Luciani*, and *Mosso*. Some of these writers regarded Cheyne-Stokes respiration as being entirely distinct from other arrests of breathing; others held it to be merely the most fully developed example of a series of phenomena linked by gradations. He would like to call attention to the fact that along with the alterations in the breathing there were frequently changes in the rate and tension of the pulse, in the size and reaction of the pupils, in the condition of the muscles, and in the state of the mental faculties—all these phenomena accompanying the periodic variations of the breathing. Every theory which had been advanced postulated a condition of lowered activity of the respiratory centre, but here the likeness between the explanations ended, for some of them regarded the depressed state of the centre as due to changes in the quantity of the gases contained in the blood, others as being caused by simple exhaustion of the nerve-cells. Of the theories referred to those of *Rosenbach* and *Filehne* might be regarded as representative. The former attributed the complex of symptoms (respiratory,

circulatory, visual, muscular, and mental) to exhaustion of the whole nervous centres, showing itself in exaggeration and variation of the normal periods of rest found in health—the latter demanded not only that the activity of the respiratory centre should be reduced, but that it should be depressed to a lower level of excitability than the vaso-motor centre, and by this theory the arterial spasm caused by the stimulation of the vaso-motor centre interferes with the access of oxygenated blood to the respiratory centre, and thus insures and prolongs the excitation. He could not accept the theory of Filehne, as the phenomena brought forward in support of it were not constant, and he was in the meantime inclined to support the larger and more scientific explanation of Rosenbach.

Dr Smart replied that had *Dr Gibson* been present during the earlier part of his communication he would have known that his (*Dr Smart's*) cases belonged to a special, rare, and undescribed category, which could not be explained by "exhaustion of nerve cells," as can many kinds of abnormal respiration of more frequent occurrence. He, besides, objected in any case to the phrase "exhaustion of nerve cells," as too vague. The "exhaustion" referred to is necessarily induced by antecedent changes, which have to be accounted for and explained on sound physiological grounds.

OBSTETRICAL SOCIETY OF EDINBURGH.

SESSION XLIX.—MEETING VII.

Wednesday, 9th May 1888.—*Dr UNDERHILL, President, in the Chair.*

I. *Dr Thomas Wood* showed—(1.) PLACENTA BORN WITH THE AMNION ALMOST ENTIRELY SEPARATED FROM THE CHORION. *Mrs D.*, aged 25, primipara, was taken in labour on the 26th of April. When I saw her, about 7.30 P.M., I found on making an examination that the bag of membranes was presenting at the vulva in the form of the finger of a glove blown up, only larger and more expanded. On the termination of the labour, which was quite normal, and on inspection of the placenta, which separated about ten minutes afterwards, the cause of the above noted presentation of membranes was at once explained. The amnion was found to be entirely separated from the chorion, with the exception of a small patch slightly larger than a crown piece. The cord was inserted about two and a half inches from the edge of the placenta, and the patch was situated between the insertion of the cord and the placental margin. On the other side of the cord—that next the centre of the placenta—the amnion was separated for three and a half inches, and was considerably more abundant than was sufficient to surround the cord, so much so that it was

found to form a loose fold on that side of it. It is thus evident that the chorion had ruptured pretty early in the labour, and allowed of the amnion containing the amniotic fluid to present through the rupture and the os uteri, and so form the appearances already described. (2.) EXPERIMENT SHOWING THAT THE CAUDAL EXTREMITY OF THE FŒTUS IS SPECIFICALLY HEAVIER THAN THE CEPHALIC. This experiment is not new, only the result is so considerably different from that which is supposed to take place that I think it worth while to show it to the Society. The fluid contained in this glass vessel is a mixture composed of salt water and spirit of such a density that the foetus which it contains neither rises to the top nor falls to the bottom, but is suspended in the centre—in fact, the specific gravities of the fluid and of the foetus are almost if not entirely equal. The position which the foetus assumes will therefore show which is the specifically heavier end, and this, as is here seen, is the caudal extremity. The foetus floats in the fluid almost in a vertical position with the head uppermost.

II. *Dr Barbour* showed for *Dr Halliday Croom*—(1.) AN OVARIAN TUMOUR WITH THE UTERUS, removed by him on the previous Saturday. The patient had been repeatedly tapped before coming under *Dr Croom's* care, and had been tapped once by him some weeks previous to the operation. The cyst had, however, rapidly filled, and ovariectomy was decided on. The tumour was extensively adherent, and removal was found impossible without including the uterus as well. The latter was accordingly drawn out of the wound, the neck included in a *Koebler's* clamp, and removed, the stump being treated in the ordinary way, extra-abdominally. The patient was making an excellent recovery. (2.) A SUPPURATING OVARIAN CYST. This on being tapped was found to contain nearly 100 ounces of very foetid pus. The patient had quite recovered.

III. *Dr Freeland Barbour* read a paper on EARLY CONTRIBUTIONS OF ANATOMY TO GYNÆCOLOGY AND OBSTETRICS, which will appear in a future number of this Journal.

The President had listened with interest and pleasure to this paper, which exhibited evidence of much research on *Dr Barbour's* part. He asked whether the Arabian physicians, such as *Avicenna*, had not made any contribution to the anatomy of obstetrics, as they had not been referred to in the paper.

Professor Simpson agreed with the President as to the value and interest of the paper. He drew attention to the predominance of Scotch names in the last group of *Dr Barbour's* list, and thought it more than creditable that Scotland had contributed so much to this subject. It seemed also of interest to observe how much one had simply borrowed from another, and it was of importance that the true source of some of the descriptions should

have been traced. There could hardly be any doubt that the drawing of the uterus generally attributed to Moschion was really the work of Vesalius.

Dr Milne Murray showed a perfect copy of the first edition of Deventer's book on Midwifery (1701). The later editions were quite common, but the first was comparatively rare. He drew attention to the vigour and general accuracy of the drawings, which were numerous and artistic.

Part Fourth.

PERISCOPE.

MONTHLY REPORT ON THE PROGRESS OF THERAPEUTICS.

By WILLIAM CRAIG, M.D., F.R.S.E., Lecturer on Materia Medica, Edinburgh School of Medicine, etc., etc.

PARTHENICIN.—An alkaloid, to which the name "Parthenicin" has been given, has been isolated by Dr Ulrici of Cuba from the leaves and flowers of *Parthenium hysterophorus*, commonly called Artemisilla or *Escoba amarga*. It is a crystalline substance, with an intensely bitter taste. It poisons animals, the temperature being previously greatly reduced; and it appears to have antipyretic, anti-intermittent, and analgesic effects on the human subject. It has been given in doses of 15 grains once a day.—*British Medical Journal*, 16th June 1888.

In the *British Medical Journal* for 9th June 1888, Mr Guy N. Stephen, M.R.C.S., says of *Antipyrin* that "it is of the greatest possible value in epidemic cerebro-spinal meningitis. Its success in this disease depends less on its property of reducing temperature than on its power of quelling those 'nerve storms' which are one of the principal causes of death in this disease." "It is practically the only medicine which is a real 'remedy' against the disease."

NARCEINE.—Laborde recommends narceine in whooping-cough. Dose, from $\frac{1}{6}$ to $\frac{1}{4}$ grain for children from 3 to 4 years old. It conduces to sleep, and checks the nightly paroxysms of coughing. Brown-Séquard and others endorse the opinions of Laborde (*Deutsche Med. Wochenschrift*, 5th January 1888).—*Therapeutic Gazette*, May 1888.

THYME IN THE TREATMENT OF WHOOPING-COUGH.—The last remedy added to the extensive list of drugs in the treatment of whooping-cough is common thyme, a decoction of which Dr J. B. Johnson states, in the *Med. and Surg. Reporter*, 17th March 1888,

will prove highly satisfactory. He writes that the simplicity of its preparation, its mildness of action, and peculiar sedative and antispasmodic effect in controlling the violence of paroxysms, is most astonishing. The little sufferers take the decoction without the slightest hesitation, and the benefit they derive from it is as prompt as it is remarkable. It is claimed to reduce the paroxysmal character of the cough, and renders the disease milder in its force and shorter in its duration. Dr Johnson directs an ounce of common thyme to be put into one pint and a half of hot water, and boiled down to one pint, then strained, and sweetened well with either honey or sugar. Of this one or two teaspoonfuls are given regularly every hour or two to infants, and to children a table-spoonful every hour or two during the continuance of the disease. If there is much inflammatory action of the bronchial tubes or lungs, he adds two drachms each of iodide of potassium and powdered chlorate of potassium to each pint of the sweetened decoction, and directs it to be used in the same manner as the simple decoction.—*Therapeutic Gazette*, May 1888.

HELLEBORUS VIRIDIS.—The fluid extract of *Helleborus viridis* has a yellow colour, a sharp, bitter taste, and an average specific weight of 1.097. Dr Christovich, says the *Revista de Ciencias Médicas de Barcelona*, having first made thirty-six experiments with the drug upon dogs and frogs, tried the remedy in eleven cases of cardiac disease, with the following results:—1. The drug increases the heart's contractions, strengthens its action, and increases the fulness of the pulse. 2. A decrease of the heart's activity was noticed in cases of violent cardiac activity. 3. Congestions of the lungs, liver, and kidneys were either cured or improved by the drug. 4. The secretion of urine was increased. 5. Transudations in different parts of the body were relieved by the extract, and the weight of the body decreased on account of the elimination of water. The dose employed was 10 to 20 drops of a one per cent. solution of the extract given four to six times daily (*Deutsche Medizinal-Zeitung*, Berlin, 30th January 1888).—*Therapeutic Gazette*, May 1888.

URETHAN.—Urethan is one of the newest hypnotics. Schmiedeberg, in the *Arch. für Exper. Pathologie und Pharmacologie*, xx., gives it the formula $\text{CO} < \begin{smallmatrix} \text{NH}_2 \\ \text{OC}_2\text{H}_5 \end{smallmatrix}$. It is a colourless crystal, which comes in the form of columns, has a peculiar bitter taste; melts at a temperature of 48° or 50° C.; boils at 170°; when lighted, burns with a pale flame and leaves no residue; easily soluble in water, alcohol, ether, and chloroform; of a neutral reaction. Doses of 15 to 30 grains usually produce sleep, lessens the desire to cough, and increases diuresis. The remedy has already shown itself to be of considerable value. Its use is indicated in the following cases. 1. In conditions where sleep is

needed, its action is, however, rendered difficult in cases where cerebral excitement exists (see Schmiedeberg). 2. In nervous agrypnia and weakness accompanied by loss of sleep (Sticker). 3. In cardiac cases (Sticker, Saundry, Huchard), whereby the drug excites no influence whatever upon the heart. 4. In phthisis, etc.—*Therapeutic Gazette*, May 1888.

COCAINE AND LANOLIN IN BURNS.—Dr Ernest Wende, says the *Pharmaceutische Post* for 15th January 1888, strongly recommends a four per cent. mixture of cocaine and lanolin as an application for burns. Apart from its acting as a good dressing, it allays the pains and keeps out the air. Care should be taken that the cocaine is pure, and that the mixture is fresh.—*Therapeutic Gazette*, May 1888.

HÆMOSTATIC ACTION OF ANTIPYRIN.—In six cases of blood vomiting, says the *Russk. Med.*, Dr Olikhov tried inhalations of a watery solution (1 to 10) of antipyrin after all other remedies had failed. The best results followed its use. Simultaneously a fall of temperature was observed.—*Therapeutic Gazette*, May 1888.

MEDICAL PERISCOPE.

By FRANCIS TROUP, M.D.

Berlin. Klin. Wochensch., No. 17, 1888.—Dr G. Rabbas, assistant physician in the lunatic asylum of Marburg, gives his experience of "Sulfonal," recommended by Prof. Kast of Freiburg, as a hypnotic. The sulfonal was given dissolved in a wineglassful of water, and seemed to be taken, even by the most excited patients, without opposition. He finds that sulfonal is a hypnotic which operates more certainly than amylenhydrate or paraldehyde even if given in larger doses. Also in people accustomed to narcotics its operation is successful: it is less repulsive than amylenhydrate or paraldehyde as regards smell and taste. Chloral hydrate brings on sleep much sooner, but its effect is not so lasting as that of sulfonal. Single doses of 2–3 grammes of sulfonal have usually a good effect even on excited patients. There does not seem to be any need for increased dosage when its use is protracted. Sleep generally begins within half an hour or an hour, and lasts uninterruptedly for 6–8 hours or even longer. Its operation is therefore very gradual. The sleep resulting from its use is perfectly normal. Larger doses, 4 grammes, given at short intervals with smaller ones of 2–3 grammes, seem to have no evil influence on the organism, and above all, no bad after effects, even after continuous administration, were discoverable. Appetite, digestion, respiration, and heart-action were in no ways damaged. In one or two cases vomiting and diarrhoea followed the administration of the medicine, but Rabbas is doubtful whether they could be reckoned to its account.

This absolute harmlessness of sulfonal on the heart is a great advantage when compared with chloral. Naturally sulfonal sometimes fails in its expected action like every other known narcotic.

Ibidem, No. 24, 1888.—Dr Ottomar Rosenbach of Breslau gives some observations on sulfonal and amylenehydrate (which are to appear in an early number), and introduces the subject with notes on the "method of testing narcotics." The very great difference in the chemical constitution of our useful hypnotics shows more than any other thing, that the disturbances of the periodical alteration of the cerebral excitability, which we call sleeplessness, are due to many different causes, and it is only a necessary consequence of this view, that in the use of hypnotics a strict individualization, not only of the persons suffering from agrypnia (sleeplessness), but also of the several different forms of sleeplessness in the same persons, is demanded. The worth of the discovery of a new hypnotic rests, therefore, in the first line, not on the mere increase of our repertory,—chloral and morphia are ample enough for simply procuring sleep,—but before all things, whether it satisfies the indications of this individualistic therapy. It is therefore our duty to examine the properties of each new drug, not to leave out of sight its occasional unpleasant effects, and thus fix more exactly its sphere of potency. If we so succeed in obtaining strict indications, we may hope that in each separate case, only after exact scrutiny of the state of matters, and not as often happens at random or following the fashion of the hour, to be able to prescribe a determinate narcotic in certain defined conditions, and perhaps to reach better results with less energetic means than those more potent, which, if they bring about the desired result, do so only momentarily and with an unpleasant series of disagreeable accompaniments and sequences. But to reach this goal of a correct indication standpoint, for hypnotics and anæsthetics especially, the scrutiny of the medicine must be undertaken in an absolutely unobjectionable manner, certain sources of error arising from the subjective statements and the influence of certain perceptions and imaginations of the person tested must be eliminated, and the co-operation of psychical factors reduced to zero. Any one who has observed on what trifles sleeplessness sometimes depends, how slight departures from the usual mode of life, little excitements, a sudden noise in nervous people or those working with the brain, are sufficient to prevent sleep, while, on the other hand, simple manipulations, light reading, monotonous counting, drinking of sugared water, bring the excited brain to rest, will confess that a certain temporary disposition of the nervous system is necessary to bring sleep about in all circumstances, and that the condition of the psyche, at the moment, plays a very important part. It is therefore an unconditional requisite, that in testing narcotic medicines this psychical factor should be taken into account, that is, either to exclude it altogether and to operate without the knowledge of the person tested, or by

selection of time and place so to shape the conditions, that the perceptions of the test-person should be led into a certain definite direction favourable to the success of the experiment, or in other words, to tell the patient he is getting something which will cause sleep. The first method alone gives absolutely accurate results; the second, however, allows one to get trustworthy reports according as one has operated with really efficacious drugs or only pretences.

In order to fix whether a drug which favours an already present inclination to sleep was absolutely sleep-bringing or only sedative, an experiment, without the knowledge of the experimentee what was the nature of the drug, was made (a) before dinner, (b) after dinner or in the evening, and the dose was, according as the unsuspecting patient showed tokens of weariness or actual sleep, altered on the next days at will, in order to discover the certainly operative dose.

If there was no doubt about the narcotic effect of the medicine, the test-patient was told what he had taken and of its powers, and now, instead of it, some indifferent substance was administered. If the pretended narcotic does not operate, but the true one, which was unsuspectingly again given, does, its worth is absolutely settled, particularly if it is given at a time when the test-person is not in the habit of sleeping. The experiments can, without excluding the certainty of the result, be carried on on a great number of patients collected in the same ward, if one gives the real hypnotic to some and the indifferent substance to others. The importance of the "psychical factor" is then strikingly exemplified, and proper subjects are easily found for further individualizing experiments. It is important, also, to make a few pure experiments on persons who are not bedfast, and who are totally ignorant of the nature of the medicine prescribed, because in them signs of fatigue and somnolence are doubly demonstrative. And to determine whether patients complaining of sleeplessness need really a hypnotic or only a hypnotic suggestion, it is necessary, after exact control of the behaviour of the person during one or several nights, to exhibit at first an indifferent substance in place of the desired narcotic, and if this proved inoperative, then to give the narcotic.

OCCASIONAL PERISCOPE OF DERMATOLOGY.

By W. ALLAN JAMIESON, M.D., F.R.C.P., Extra Physician for Diseases of the Skin, Edinburgh Royal Infirmary; Lecturer on Diseases of the Skin, Edinburgh School of Medicine.

XERODERMA PIGMENTOSUM.—One of the earliest observers who recorded cases of this rare disease after its first description by Hebra and Kaposi in 1870 was Dr Taylor of New York. He has kept some of his cases under notice for fourteen years, and has watched the changes which have taken place in them. In all he

has seen seven examples, and all of them were of Jewish parentage, six in fact were blood relations. The disease commenced in six about the sixth or seventh month, in one at the fourteenth. The earliest symptom was the appearance about the face or under the eyes of a well-marked, smooth, superficial erythema often regarded by the parents as the result of sunburn, but not associated with any disturbance of the health. The red patches enlarge, coalesce, and creep over the face and neck. As this prodromal hyperæmia disappears, pigmented spots and red ones, or telangiectases, show themselves, scattered irregularly over the affected regions. Dr Taylor, from close investigation, has come to the conclusion that the pigmented spots follow exactly on the site of a pre-existing red one. Very often pigmented spots appeared where the red one was only visible by means of a glass. These lesions are erratic, they come and go. Atrophic changes are soon superadded; these on the skin of the face reduce the skin to the thinness of parchment, and destroy nearly all the follicles. On the hands and arms, feet and legs, atrophy is not so well marked, and it occurs mostly on parts subjected to tension, such as over the knuckles. When the atrophic process is at an end no further pigmentation takes place, and a smooth, white, mother-of-pearl surface is left. In almost all cases, particularly in those in which the pigmentation is deep and extensive, hypertrophic changes take place. Epithelial new-growths occur, which may be merely thickened pigmented epidermal cells, resembling keratosis senilis, or these may develop into sessile, or pedunculated tumours, of a deep red or purple blue colour. Such may become paler and less vascular, brittle and friable, so that they may drop off, and scar over or leave an intractable ulcer. Kaposi explains the occurrence of epithelioma at such early ages as being due to the rapid changes going on in the epithelial layer, in the production and rapid disappearance of new papillæ and epithelium, and of the pigment carrying elements. A tabular analysis of all the forty cases reported by various observers up to date is appended.

—*New York Medical Record*, 10th March 1888.

TREATMENT OF CALLOSITIES AND WARTS.—Salicylic collodion is not always effectual, and is usually a slow method, hence Dr Roesen employs salicylic acid in substance instead. He in the first place moistens the growth to be removed with boracic or salicylic solution, then covers it with a tolerably thick layer of pure crystallized salicylic acid, over which is put several folds of wet boracic lint, over this a piece of guttapercha tissue, and the whole is secured by means of a bandage. If the callosity or wart is not too thick, the application is allowed to remain five days, at the expiry of which the growth is found somewhat shrunken, completely separated from its base, and beneath, an entirely unbroken surface. Should the growth to be removed be of considerable thickness, such as an hypertrophied toe-nail, the application must be renewed on the fifth day, or should be allowed

to remain in position ten days.—*Münchener med. Wochenschrift*, No. 9, 1888.

THE EARLIEST SYMPTOMS OF INHERITED SYPHILIS.—Miller, principal physician in the Foundling Hospital at Moscow, in an analysis of these, directs particular attention to fissures of the lips, especially of the upper. Parrot indeed regards such as unmistakable proofs of hereditary syphilis. Actually, Miller observes, rhagades of the upper lid in syphilitic infants form a very frequent and early manifestation. The musculus orbicularis oris by its contraction throws the mucous membrane into folds at each act of suckling, and the epithelium covering them in consequence of friction and maceration is destroyed, particularly on the upper lip, on which these folds are, as a rule, more strongly developed. The very earliest chaps on the upper lip are generally two, placed symmetrically on either side of the central portion. The upper lip is composed of three parts, two lateral, and a central portion; at the spots where these unite, two minute furrows are to be seen in infants, and it is here, in these symmetrical folds, that the earliest syphilitic fissures occur. Relatively rarer are the fissures in the under lip. When such do occur, one forms in the first instance in the very centre, in the fold which indicates the point where the two parts from which this lip was formed are united. Fissures in the situations indicated should serve as tolerably certain proofs of inherited syphilis. They are extremely obstinate, and tend to extend. The individual cracks frequently run together, and give rise to very large ulcers. They are also very painful, render suckling difficult, and rapidly cause wasting. When they heal, white, glancing, minute scars persist for long,—in these there is evidence long after of past syphilis.—*Jahrbuch für Kinderheilkunde*, Band xxvii., Heft 4, 1888.

QUADRILATERAL LINEAR SCARIFICATION AS PRACTISED BY M. VIDAL.—Dr Brocq has given a detailed account of this mode of treating various skin diseases as carried out in the St Louis Hospital, Paris. The knife employed is one with a triangular point and double cutting edge. The incisions made with this are invariably vertical to the plane of the integument, and when one linear series has been completed, this is crossed by another at right angles, and even by a third made obliquely. No matter how deep the incisions must be carried to be effectual, there is a nearly absolute rule that they should never, or almost never, divide the corium in its whole thickness, else vicious scars might result. As to the subsequent dressing, it is often only necessary to apply a slightly antiseptic wash, such as weak solution of boracic acid, of corrosive sublimate, or of carbolic acid, twice a day. Vidal repeats the operation every eight days. He occasionally employs local anæsthesia by the ether spray, or by the application for a few seconds of the chloride of methyl, which Dr Bailly of Chambly has been able by a new discovery to keep in a liquid condition, or

by the subcutaneous injection of cocaine. In treating tuberculous lupus by scarifications there are two rules to be borne in mind. First, always to go to the limits of the disease in depth, and reach with the point of the scarifier, solid, healthy tissue, otherwise recurrences, starting from the deep parts, would be constant and disastrous. Second, to arrest first of all the invading march of the disease upon the surface, scarifying beyond the apparent limits of the lupus infiltration, for the vessels of the periphery are dilated and diseased. Around them a proliferation of embryonic cells has taken place, which must be attacked and destroyed. In the cicatricial tissue which results, little yellow points are noticed; these are so many lupus tubercles, ready to bud. To deal with such, the needle is plunged into their interior as deep as is necessary to reach the healthy tissue, and they are broken down in all directions one by one, while over the whole surface a series of quadrilateral linear incisions is made, and the part is then sprayed with a 1 per 1000 corrosive solution. Vidal claims for this method that skilfully carried out it produces an almost perfect cicatrix. Besides lupus, Vidal treats by scarifications that form of sycosis which affects the centre of the upper lip, and is usually consecutive to a chronic coryza. In this case he makes the incisions very deep, but two or three centimetres apart. Keloid, again, is another disease which yields to scarifications. These if repeated a few times render a painful keloid painless. To cause diminution in the volume of a keloid, it must be divided by incisions widely separated, and proportioned in depth to the thickness of the keloid.—*Journal of Cutaneous and Genito-Urinary Diseases*, March and April 1888.

ON THE CURATIVE EFFECT OF ERYSIPELAS ON VARIOUS FORMS OF DISEASE.—Schwimmer has had opportunity to convince himself of the favourable influence which erysipelas exerts on the following ailments. Although the general infection of the system by syphilis continues uninfluenced by formidable outbreaks of erysipelas, as is proved by the appearance of fresh eruptions, yet the local specific manifestations heal with increased rapidity. The local lesions in lupus remain unaffected should an intercurrent erysipelas pass over them. A subsequent attack of erysipelas caused a cicatricial keloid after a burn to absorb and disappear. Also a double epididymitis and orchitis vanished when an erysipelas of ten days' duration attacked the scrotum.—*Vierteljahresschrift für Dermatologie und Syphilis*, 2 Heft, 1888. (Abstract.)

SURGICAL PERISCOPE.

By A. G. MILLER, F.R.C.S.E.

ANTISEPTIC IRRIGATION OF THE KNEE-JOINT (Mr Vincent Jackson, F.R.C.S.E., Wolverhampton, *Birmingham Medical Review*, February 1888).—This operation consists in tapping the joint and

then washing out with an antiseptic solution. It is applicable to cases of chronic synovitis that have resisted ordinary treatment by rest, pressure, and counter-irritation. Mr Jackson reports a successful case, and considers that there is less risk in this injection method than in drainage.

EXCISION OF THE CANCEROUS RECTUM (Jordan Lloyd, F.R.C.S., Birmingham, *Birmingham Medical Review*, February and March 1888).—Mr Lloyd's object in writing is to urge early diagnosis and operation in cases of rectal cancer. He urges the importance of careful examination of the rectum in every case in which there is any suspicion of disease. He says that, though anxious to afford his patients the relief that excision would give, he has during the last four years, out of a dozen cases, met with none that he considered suitable for excision, all being too far advanced. He publishes five cases of operation, in one only of which there seems to have been a cure. This he explains is due to his having operated in cases on which he would not now operate, because there could not be any certainty of removing the whole disease. As regards the method employed, Mr Lloyd prefers splitting the perineum back to the coccyx, and quickly removing all the disease with scissors. For after-treatment he recommends leaving the wound to heal by granulation. Free removal and thorough drainage seem to be his mottoes. None of his patients died from the operation. The unfortunate results, as compared with colotomy for instance, are shock, which is always great after excision, even though there may not be much bleeding, and subsequently either incontinence of fæces or stricture. Taking these into account, he considers excision to be the best operation, especially when complete removal of the cancer can be effected. For this early diagnosis and early operation are necessary. That lives may be saved, Mr Jordan Lloyd pleads with the profession in forcible language, which should carry conviction to every one who has had any experience of these cases, that all cases of rectal disease should be carefully examined with the finger and speculum.

SURGERY OF THE THYROID (Walter Whitehead, F.R.C.S., F.R.S.E., Manchester, *Lancet*, 10th March 1888).—Mr Whitehead's lecture is most instructive. As we cannot extract it entire, we indicate a few of the more important points dwelt upon. Two cases of successful removal are reported,—both, however, operated on only a few months ago. In describing his method of operating, he meets the difficulty of bleeding by double ligaturing the vessels as they are come upon. He points out the necessity of getting down on the capsule of the gland, and not losing one's way among the muscles and fasciæ. He uses (one is tempted to say "of course") blunt-pointed scissors in dissecting the gland out. He dresses with iodoform and wood-wool. He employs drainage and fixation

of the head for the first few days. He points out how these cases sometimes suddenly get well, apparently spontaneously. He also enters somewhat into the pathology of tumours of the thyroid.

MALIGNANT TUMOUR OF THE THYROID (E. P. Mason, M.D., *The Brooklyn Medical Journal*, March 1888).—The patient was a woman, æt. 55. The tumour was noticed first two and a half years, and had been growing rapidly for seven months before she entered St Mary's Hospital, when the swelling was as large as a child's head. Respiration was much interfered with. Dr Rockwell attempted to remove the tumour, but had to desist after having laid bare the right subclavian artery, and tied the internal carotid and both thyroids, on account of being unable to get at the deepest parts of the growth. The patient was much exhausted. Transfusion was employed, but she died in an hour. Dr Rockwell concludes "that attempts to remove malignant growths of the thyroid are unwarranted except in their earliest stages."

AMPUTATION OF THE UPPER EXTREMITY IN THE CONTIGUITY OF THE TRUNK (Mr Bennett May, F.R.C.S., Birmingham, *Birmingham Medical Review*, February 1888).—Mr May describes M. Berger's method of amputating the arm and scapula. An incision is made along the clavicle, and the central third removed. The subclavian artery is then isolated and ligatured. The arm is elevated, and then the vein ligatured. An incision is then carried from the centre of the first to the angle of the scapula in front of the shoulder. The pectoral muscles are cut and the brachial plexus. Any vessels seen are secured at once. The limb then falls away from the trunk. A posterior flap is made by an incision carried from the outer end of the clavicle to the angle of the scapula. Mr May had performed the operation for sarcoma of the humerus and scapula successfully. There was no difficulty, and very little hæmorrhage.

TREATMENT OF ENLARGED TONSILS.—Dr Hoffmann of Baden-Baden, in an article contributed to the *Philadelphia Medical News* (26th November 1887), suggests that instead of cutting off portions by the knife or tonsillotome, a blunt hook should be passed into the apertures on the surface of the gland and made to tear its way out, or blunt-pointed scissors may be used instead. The result of this treatment is to evacuate any retained secretion or curdy pus, and afterwards to secure diminution in size of the gland by cicatricial contraction of the tears or cuts. Dr Hoffmann considers that the chronic inflammation which causes the enlargement is due to the retention of putrescent matters in the pits or follicles of the tonsil. He prefers the blunt hook to the scissors. The operation is easily performed, the gland being friable, and is almost painless. Dr Hoffman says,—“The principle of the practice of this trifling operation for the prophylaxis of tonsillitis, is based on the view that

there shall not exist, either in the tonsils or posterior thereto, any opening which has not been thoroughly explored to its base and then laid open and converted into a cleft, which, during every act of swallowing, opens, and thereby empties itself, so that no inflammatory products can attach themselves."

PTOMAINES AND SUPPURATION.—"Some observations of Grawitz, in the October number of Virchow's *Archiv*, if confirmed, will add a great deal to our knowledge of suppuration. From some earlier experiments Grawitz was led to believe that in subcutaneous inflammations in which bacteria were actively concerned, suppuration was caused, not by the bacteria directly, but by chemical products—ptomaines—resulting from the metabolic activity of the bacteria. According to him, therefore, the rule would hold good that, aside from artificial phlegmons caused by the injection of ammonia or turpentine, in abscess of the subcutaneous fatty tissue, the tissues are first prepared, as it were, by the chemical products of the so-called pyogenic bacteria (*staphylococcus pyogenes aureus*, *albus*, *streptococcus*), and then the bacteria multiply and carry the process further by the formation of new alkaloids. It is of great practical importance, as shown by Grawitz, that cadaverine, a common result of putrefaction, when introduced into the tissues can cause inflammation and suppuration. For it proves that the old views, according to which putrefaction of wound secretion caused pyæmic disease, are still valid. These observations, by so competent an investigator as Grawitz, deserve careful study and repetition. As said before, they have an important bearing on the subject of suppuration. That they will alter the well-grounded belief that in nature all suppurations are caused by bacteria—in other words, "without microbes no suppuration"—is not probable. It is quite evident there are a number of micro-organisms beside the few with the specific name "pyogenic," that in some way or other cause suppuration, and as the putrefactive alkaloids are the results of bacterial action, it is only making another step in the process, and not altering the conditions, to unite the alkaloid directly with the suppuration."—Leading article, *Philadelphia Medical News*, 26th November 1887.

GRAFTS OF FROG'S SKIN.—"Morales Perez has transplanted three quadrangular grafts, two centimetres wide by three centimetres long, to a burn of the hand. After five days these grafts were found adherent, except two small bits. Two additional grafts were made in other points, which adhered. After some days the epidermis and the blackish-green pigment of the graft dried up, and left a thin white cicatrix, which became a satisfactory elastic covering to the grafted area."—*Boston Medical and Surgical Journal*, 27th October 1887.

THE TREATMENT OF VARICOSE VEINS.—"Stevenson reports eight cases treated by the injection of pure carbolic acid, after Watson

Cheyne, and Weber reports a varicosity of the saphenous vein successfully treated by the injection of pure carbolic acid. This method of Cheyne's is undoubtedly quite safe and gives fairly good results. The procedure is as follows: An Esmarch tube should be secured around the thigh sufficiently tight to stop the venous circulation, then in about a minute it should be made tight enough to shut off all the circulation. Injections of one minim of pure carbolic acid should be made into the veins at about an inch and a half apart, beginning at the upper end of the vein. These punctures should be closed antiseptically, and the elastic tourniquet should be removed cautiously after the lapse of fifteen minutes. Patient should be confined in bed for a week."—*Boston Medical and Surgical Journal*, 27th October 1887.

SUPRAPUBIC CYSTOTOMY (by F. S. Dennis, New York).—Much of the substance of an extended paper on this operation is a repetition of what may be found elsewhere, and therefore need not be referred to here, but the opinion of an experienced operator on special details is always of importance. The amount to be injected into the rectal bag is stated at 12 ounces, while for the previously emptied bladder about half that quantity, or 6 ounces, of antiseptic fluid, is said to be required. The rectum has been lacerated with 18 ounces, and the bladder ruptured by over distension, although the amount is not stated. The writer advocates retaining the catheter by which the bladder was injected to act as a guide while the surgeon is working down behind the pubes. The pelvis is to be raised so as to cause the abdominal viscera to gravitate towards the diaphragm. After the linea alba just above the pubes has been divided, Dennis recommends the use of a wire retractor like the speculum used for the eyelids. The cellulo-adipose tissue just over the bladder is to be separated with the handle of the knife with as little laceration as possible. Before the bladder is opened it is to be steadied by two delicate tenacula, and where a tumour is expected, these are to be replaced by two silk stitches. After the stone has been removed, Dennis advises that a soft rubber catheter should be tied in for 48 hours, but not longer for fear of urethritis, while at the same time he recommends that a tube should be fixed into the bladder from the wound, and the patient laid at first on his side or on his abdomen. Immediate suture of the bladder is only to be attempted when the patient, and especially his bladder, is healthy and gives good promise of rapid union. A few days after the operation the patient is to sit up in bed. The special indications for the operation are given as follows:—"First, In cases of lithotomy for large hard calculi; also in lithotomy occurring in a patient suffering from paraplegia, a contracted pelvis, perineal tumours, encysted calculi, ankylosis of the hip, hæmorrhoids, or great obesity. Second, For the removal of certain foreign bodies, as hairpins, bodkin,

needles, etc., for the treatment of chronic cystitis, and for the removal of calculi in the female. *Third*, In lithotomy occurring in a patient with greatly enlarged prostate, or with fibroma of the prostate, or in calculi found in diverticula behind the prostate. *Fourth*, For the excision of tumours of the bladder. *Fifth*, For rupture of the bladder." The special advantages which the supra-pubic operation offers are enumerated as follows:—" *First*, The safe removal of large hard stones which cannot be removed by any of the other methods. *Second*, The avoidance of perineal hæmorrhage, of urinary infiltration, of perineal fistula, of laceration of the rectum and neck of bladder, the prevention of traumatic stricture and cystic hæmorrhage; the avoidance of any interference with the genital apparatus. *Third*, The prevention of a vesico-vaginal fistula in young women, or of permanent incontinence of urine in aged women. *Fourth*, The safest operation in all forms of renal disease, and the only means of saving life in rupture of the bladder. *Fifth*, The tendency to recurrence of stone is much less than by lithotomy. *Sixth*, The extreme simplicity, its present reduced rate of mortality, its freedom from danger during its execution, and its safety for the general practitioner in comparison with the perineal operations on lithotomy." The author contrasts the mortality from suprapubic favourably with that from the lateral operation, and believes that when bladder antisepsis can be improved and when more favourable cases are selected for the former operation this difference will be still further increased. He holds that "future experience will in all probability limit the cutting operation for stone through the perineum to those cases where a light stricture of the urethra exists, and where the operation of external perineal urethrotomy is indicated for the purpose of relieving the urethral stricture."

PERISCOPE OF GYNÆCOLOGY AND MIDWIFERY.

By J. MILNE CHAPMAN, M.D., Inverness.

VAGINAL TAMPON IN THE TREATMENT OF CERTAIN EFFECTS FOLLOWING PELVIC INFLAMMATIONS (Emmet, *New York Med. Journ.*)—The writer states that, though he still holds to the great utility of hot-water injections, he has long realized the fact that under certain conditions their use is but palliative, and occasionally is inert. He refers to the frequency of varicose and dilated veins in the broad ligaments or cellular tissue subsequent to injuries of the pelvic fascia, and to inflammatory attacks, and asks under what conditions are we likely to obtain the best results from the use of the hot-water vaginal injections, and when might we expect a good result from the uniform pressure which will be exerted by properly tamponing the vagina. His answer is,—The use of the hot-water injection is invaluable in the treatment of all stages of inflamma-

tion involving the cellular or connective tissue of the pelvis in lymphangitis, in phlebitis, and in the early stages of pelvic peritonitis. The vaginal tampon, in my experience, has only been beneficial after all acute symptoms have subsided. If this one feature is not recognised as a cardinal point, the indiscriminate use of this means of treatment will always be attended by unsatisfactory results, and with much unnecessary suffering to the patient. The only class of cases in which I have derived any special benefit from the use of the vaginal tampon has been where I have supposed the bloodvessels had degenerated into a varicose condition, or where this state of the veins has been brought about from the effects of local peritonitis with adhesions, from the loss of the connective tissue, and from injury where the fascia has been involved. . . . The use of the tampon can accomplish no good, but may do much harm so long as any inflammatory symptoms can be detected. He concludes that the tampon acts mechanically by compressing the dilated veins, and by lifting the uterus to its natural position in the pelvis, so that the circulation between the arteries and the veins may be equalized. We must realize, however, that we can only gain permanent good through use of the agent after long and tedious application, which may extend over the course of months. The tampons are best made of ordinary cotton wool, rolled into pieces the size of English walnuts, and well smeared with vaseline. On beginning the operation, it is sometimes necessary to place the patient on the knees and chest before the uterus can be replaced. Then several balls are to be introduced, and placed at a point where the uterus can be held by means of the finger while the patient is turning upon her back. One ball of cotton after another should be placed in the vagina, and passed closely along the index finger of the other hand, which is engaged in pressing back the perineum and in holding up the uterus or that portion of the tampon already introduced. If one part of the vagina is more sensitive than another, we must learn to humour it by making less direct pressure until tolerance becomes established. When the sensitiveness is situated in the neighbourhood of one of the broad ligaments, we must pack the cotton on the opposite side of the cervix to act as a crutch. If the inflammation is chiefly about the utero-sacral ligaments, it is easy to tampon so that the uterus will be lifted without making direct pressure. The tampon should be placed so as to make as little direct pressure to the left as possible along the course of the rectum. After the introduction of a sufficient amount of cotton, we are to pass the index finger carefully over every portion, to be certain that it is uniformly placed, and to smooth down the entire surface. When this "finishing off" is properly done, it is possible, from the coherency of the cotton and vaseline, to pack but a portion of the vagina. It may be but the upper part or to one side, and it is likely to remain in position. There are two practical points in the application which, if not carried

out carefully, will cause all our efforts to miscarry. The first is to keep the uterus as nearly as possible in its natural position and at the same plane in the pelvis. The other is to place the fresh tampon without delay after the other has been removed. The writer has been in the habit of removing the tampon daily; but if it could be kept deodorized, the longer it remained undisturbed the more thoroughly would both of these indications be met in practice. The best instrument for removing the cotton is a piece of whalebone with a rough screw cut in the end. This is easily passed alongside of the finger and twisted into one portion after another. It is well to leave that part directly under the uterus until the last, so that the finger may be slipped beneath the cervix at the proper moment to hold it in place until the fresh tampon can be introduced. To facilitate this, everything should be prepared beforehand. It is very evident, if the uterus is allowed to prolapse, that just in proportion as it does so the circulation must be disturbed, and that if there is any advantage to be gained from maintaining a steady and uniform pressure, it must be as nearly as possible a continuous one. Therefore, there should be no unnecessary delay in returning the tampon, as the blood begins again to rapidly dilate the vessels as soon as the pressure is removed. A serious drawback to the satisfactory progress to be gained by this mode of treatment is the recurrence of the menstrual period, when the use of the tampon has to be discontinued. Just before the period is expected he removes the tampon, and immediately introduces a rubber ring of a sufficient size to admit of the introduction of the finger between it and the vaginal wall at any point. These rings are about three-quarters of an inch in diameter, and so long as the patient remains in the recumbent position their broad surface offers a fair substitute for the tampon, both in exerting a direct pressure upon the larger vessels and by taking up the slack in pelvic tissues. As soon as the flow has ceased he uses a large hot-water douche, and then employs the tampon as before in the continued treatment of the case.

THE DIAGNOSIS OF BEGINNING CARCINOMA OF THE CERVIX (Stratz, *Centbl. f. Gynak.*).—The writer arrives at the following conclusions with regard to carcinomatous disease of the cervix:—(1), The diseased place is sharply limited by sound tissue, and never goes over into it by degrees; (2), A difference in the level of the whole diseased portion can always be made out; (3), Carcinomatous portions have always a light yellow colour; (4), The malignant deposit is usually shown as finely granular whitish-yellow glistening elevations, at least in individual places. As these characteristics are evident to the naked eye, it is important that all practitioners should recognise them as early as possible, when a surgical operation may be the means of saving the patient's life.

EXTIRPATION OF THE UTERUS IN CARCINOMA (Fritsch, *Ibid.*)—The writer gives his experience of this operation based on sixty cases. The mortality in his hands was 10 per cent. Twenty of the survivors have had no return of the disease; in two cases a period of three years has elapsed since the operation; in seven cases more than two years have elapsed, while the rest of the cases have passed over a period of six months. He believes that recurrence of carcinoma in these cases of total vaginal extirpation is less likely to take place than after operations for carcinomatous disease in other organs. To insure success the uterus must be movable. Those cases in which the uterus and parametrium are involved are very unfavourable for operation; in fact, if the parametrium be involved, the operation should be abandoned, even if the vaginal *culs-de-sac* have been opened. The writer incises the vaginal walls laterally instead of anteriorly and posteriorly, and only opens the peritoneum late in the operations. If difficulty is experienced in removing the ovaries they may be left, but steady traction on the ligatures will generally lower them sufficiently to allow of their removal. The peritoneal opening is not sutured, but closed with an iodoform tampon. No prolapse of intestines has occurred in his practice. In order to remove the uterus more easily draw steadily first on one corner of the uterus, and then on the other. If a fibroid complicates matters, laparotomy must be performed as well as the vaginal operation, and does not greatly increase the danger. When a recurrence of the disease takes place, it generally affects the cicatrix first unless a considerable period of time has elapsed, when it will probably first occur in the broad ligaments.

DISTOCIA FROM SHORT OR COILED FUNIS (King, *Journal of the Amer. Assoc.*)—The writer has before now urged upon the profession the importance of this complication in labour, and advocates the postural position for its most effectual treatment. In his present paper he again draws attention to the subject, and quotes several cases in which labour was delayed for considerable periods, owing to the funis being coiled round the body or neck of the foetus. In one case the head was so far advanced as to be half-born, but its further progress was delayed by the cord, which was twisted four times round the body of the infant, while only 2 inches represented the free portion of the cord. In these cases forceps are frequently applied, sometimes when the child is dead, sometimes in time to save the life of the foetus, but only to tear the mother's perinæum and soft parts. As a rule, forceps are applied successfully, but the method of treatment is wrong. If the head is delayed in its further downward progress, the position of the patient should be changed, so that instead of the usual one, she must assume a sitting or squatting position. This method of treatment, the writer complains, is not sufficiently recognised or

taught by most modern authorities. Smellie records a case of this description, and his treatment by placing the patient in a posture between lying and sitting, which was successful. Denman recognises a funis coiled round the infant's body as a cause of distocia, and recommends change of position. In many of these cases the patient has been possessed of an instinctive desire to sit up or assume a kneeling or squatting posture instead of that usually adopted, and the writer again refers to this important symptom in these cases.

PURULENT OPTHALMIA OF INFANTS AND ITS TREATMENT (Owen, *Birmingham Med. Review*).—In the early stages of this disease, the writer recommends antiseptic treatment from the outset, washing the conjunctiva every hour with a weak carbolic lotion, 2–3 grains to the ounce, or a boracic lotion of 5 grains to the ounce, or the following—boracic acid 40 grains, liq. hydrarg. perchlor., 1 ounce to water 8 ounces. An ointment of iodoform, 5 grains to vaseline 1 drachm, must in any case be freely applied to the eyelids. If the disease has assumed a severe form, and is more advanced, antiseptic lotions with nitrate of silver solution, 15 grains to water 1 ounce, is advised. If there be any loss of transparency of the cornea, a solution of sulphate of atropia, 2 grains to water 1 ounce, must be used in addition to the nitrate of silver solution. Prophylactic treatment which will prevent this disease, and so save any need for the methods of treatment above described, is entirely omitted.

PERISCOPE OF SYPHILOLOGY.

By FRANCIS CADELL, F.R.C.S. Ed.

THE ABOLITION OF THE CONTAGIOUS DISEASES ACTS IN ITALY.—In the *Pall Mall Gazette*, 26th April 1888, a correspondent from Rome writes:—"After a crusade of fifteen years against the immoral and oppressive 'regulations,' passed in February 1860, for the control of prostitution, the *Official Gazette*, 12th April, contains a decree for their abolition."

NECROSIS OF THE GREATER CORNU OF THE HYOID BONE, AND OF OSSIFIED PORTIONS OF THE THYROID CARTILAGE; EXTRUSION OF SEQUESTRA FROM AN ABSCESS IN THE ANTERIOR TRIANGLE OF THE NECK, FOLLOWING GUMMATOUS ULCERATION OF THE TONGUE AND PERICHONDRITIS OF THYROID AND CRICOID CARTILAGES; PROFUSE HÆMORRHAGES; PNEUMONIA; PHTHISIS.—Mr Nunn described this case. The patient, aged 33, was a gentleman who had served with the army in India for a short time. About three years before coming under Mr Nunn's notice he had suffered from syphilis, followed by constitutional symptoms. Tertiary ulceration of the tongue was the chief trouble. The irregular

habits of the patient prevented the steady carrying out of any treatment. At the end of fourteen months, swelling with tenderness appeared on the right side of the larynx, and a couple of weeks later, profuse hæmorrhages, three in number, occurred; ultimately the sequestra above named were discharged from an abscess which formed in the anterior triangle of the neck near the sternum. The abscess ultimately became a pharyngeal fistula, liquid food escaping during the act of deglutition. Pneumonia set in immediately after the hæmorrhages, and finally the patient died of phthisis (Report of Clinical Society of London, 11th May 1888).—*British Medical Journal*, 19th May 1888.

A CASE OF SYPHILITIC ERUPTION WITH CHANCRE ON THE TONSIL.—Dr Henry J. Reynolds has an account of this case in the *Philadelphia Medical Times*, 1st March 1888. The patient was forty-five years old, a native of Ireland. By occupation a Turkish-bath attendant, but says he has been out of employment for the last six months. He suffered from a typical syphilitic eruption. He denied ever having had a sore on the penis, and upon examination there was no evidence of it, but upon the left tonsil a peculiar sore was found, and in the neck and region of the angle of the jaw on the same side, a hard swelling as large as a cherry, both of which appeared suspicious. It seemed, therefore, very probable that this sore on the tonsil represented the primary stage of the disease, and that the swelling at the angle of the jaw was the bubo. As a further corroboration, Dr Reynolds found in this case a febrile condition, anæmia, more or less soreness of the mouth and throat, and, further, one of the most infallible of all symptoms of syphilitic disease, viz., enlargement of the post-cervical glands, particularly the gland situated upon each mastoid process, which is enlarged to the size of a bean. (Patient, when seen a week subsequently, admitted having exposed himself to the syphilitic virus with men in an unnatural way.)

THE RECOGNITION OF UNSUSPECTED SYPHILIS.—In this paper several cases are cited by Dr John B. Roberts to show the importance of recognising the syphilitic taint in obscure cases. Some years ago he saw a patient who had had an ulcer of the thigh for a number of months. He suspected that this was a case of syphilis, as chronic ulceration of the thigh was unknown. Ulcers below the knee are often non-specific, but a chronic ulcer above the knee, if it is not malignant or traumatic, is almost certainly syphilitic. Specific treatment soon caused a marked improvement in the ulcer. It may have been originally traumatic, as the patient believed, and yet the failure of cicatrization be due to the syphilitic diathesis. Another case showing how an original traumatism may be the exciting cause of the development of a syphilitic lesion in a syphilitic subject was as follows:—A child, while playing with some companions, was injured by gravel

thrown at its face, some particles of which lodged in its eyes. The inflammation set up resulted in interstitial keratitis. Large doses of green iodide of mercury, followed by potassium iodide, combined with the use of atropia, and, subsequently, of eserine, led to a rapid and complete recovery. A gentleman had ulceration of the surface and interior of the nostril for a number of months. Local treatment had been used without benefit. Under 30-grain doses of potassium iodide three times a day, and doses of one grain of green iodide of mercury, there was great improvement in three or four days; and when last heard from, was perfectly well. A woman had a swelling upon the alveolar process of the jaw, which presented somewhat the characteristics of sarcoma of the jaw bone. She was placed upon specific treatment, and the supposed malignant tumour entirely disappeared. Dr Roberts hoped his paper would direct attention to the importance of suspecting syphilis in every patient seen by medical men.—*The Polyclinic*, March 1888.

Part Fifth.

MEDICAL NEWS.

ROYAL COLLEGE OF PHYSICIANS, EDINBURGH.—The following gentlemen passed their final examination for the degree in Medicine at the sittings held on 7th June 1888, and were admitted L.R.C.P. Ed.:—Edward George Peck, London; Edward John Plummer, Malmesbury; Thomas Wm. Cundall, York.

PRELIMINARY ANNOUNCEMENT OF THE COMMITTEE OF ARRANGEMENTS OF THE CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.—This Association will hold its first triennial session in the city of Washington during the 18th, 19th, and 20th of September next. The meetings of the Congress will be held in the evenings, beginning at 8 P.M., and those of the societies composing the Congress will be held during the daytime, according to the programme each may respectively provide. The sessions will be open to the profession. The local committee of arrangements of the Congress has secured places of meeting for the Congress and each society in close proximity, so that the members of the respective societies can interchange attendance at pleasure, without inconvenience. It is the purpose of the Executive Committee of the Congress to print the programmes of all the societies, provided copies be supplied on or before August 15. The local committee requests the secretaries of the societies to forward the names of those of their invited guests who have accepted their invitations, designating them as Foreign and American. The committee of arrangements is composed of one member of each society represented in the Congress. Inquiries may be addressed to the chairman, Dr Busey, at Washington, or to the representative member of each society on the committee. It may also be stated

that the committee of arrangements of the American Gynecological Society, which will hold its next annual meeting in Washington at the same time, is composed of Drs Busey, Taber Johnson, and King.

INDEX MEDICUS.—There is no profession in which the spirit of research and of literary activity is as strong as it is in the medical profession. Indeed, according to our thinking, it would be better for the profession if its activity was somewhat checked; at least it would be much easier for those of us whose position requires that they should keep ahead or abreast of the ever oncoming tidal wave. Some little time since we made a careful estimate by going over a volume of the *Index Medicus*, and found that in round numbers about fifteen thousand doctors had written books and articles on medical subjects in the year. These doctors probably averaged three articles apiece, and if unsigned and uncatalogued editorials, etc., are counted in, probably not much less than fifty thousand articles were cast adrift upon the waters of medical publication in 1885. It is a fair estimate that one out of thirty of these articles was worth reading by a serious man, and the labour of hunting out the good pieces of timber in the vast mass of drifting wood is certainly gigantic. Indeed, it would be impossible to do the thing satisfactorily at all were it not for such publications as the *Index Medicus*. Of all keys of current medical literature that have been published since the world was, on this or on any other planet, the *Index Medicus* is the most complete and the most satisfactory. To the literary doctor who has once used it, it has become as necessary as the morning cup of coffee or the evening meal, without which life is a burden and effort a despair. The number of student physicians in any place can be fairly judged by the number of subscribers to the *Index Medicus*.

The number of paying subscribers in the United States is 240; in other countries, 123; the total number, 363.

In addition to these, 100 copies are taken for distribution to the medical officers of the army at special rate, making 463 total.

The receipts from the *Index Medicus* to the publisher are not nearly enough to cover the cost of so extensive a publication. Mr Davis deserves the very warmest thanks of the profession, but how long he will continue to carry this burden we do not know. It is most extraordinary that he does not in this matter receive better backing. The thanks of the profession are good, but the thanks which do not express themselves in bank-notes are only an exemplification of the old proverb, "Soft words butter no parsnips." Mr Davis carries on his business as a medical publisher in Detroit, Mich., U.S.A., and would appreciate increased support to his excellent publication.

NEPHRO-LITHOTOMY.—Dr Edward O. Otis has quoted, in the *Boston Medical and Surgical Journal* for 20th October 1887, the following remarkable and interesting case, said to be the first on

record, the operation having been performed in 1683 by Marchetti. "This gentleman, Mr Hobson, who was consul for the English at Venice, having been afflicted with a stone in the kidney" (how he arrived at his diagnosis the account does not state), "was at length attacked with a fit of that duration and violence, that it reduced him almost to desperation; and, finding no relief from any means that had been used, he determined to apply himself to Dominicus de Marchetti, at Padua, a famed and experienced practitioner there, the son of Peter, both well known to the learned part of their profession. To this person, Mr Hobson, under the greatest extremity of pain imaginable, addressed himself, imploring of him that, having made use of all conceivable means, and the best advice that was to be had in Venice, without success, he would be pleased to cut the stone out of his kidney, in his belief that no other method remained capable of relieving him, adding that he was not insensible of the danger, but that death itself was infinitely more eligible than a life in that misery under which he had long, and did then groan. Marchetti seemed very desirous to have declined it, representing not only the extreme hazard, but, as he feared, the impracticableness of the operation, that 'twas what he had never attempted, and that to proceed to it was, in fact, to destroy him. But Mr Hobson persisting that, if he refused it, he would never desist till he found out one who would do it, Marchetti was at length, by his resolution and importunity, prevailed upon to undertake it; and, having prepared himself as he thought convenient, he began with his knife, cutting gradually upon the region of the kidney affected so long, till the blood disturbed and blinded his work so, that he could not finish it at that attempt, wherefore, dressing up the wound till the next day, he then repeated and accomplished it by cutting into the body of the kidney, and taking thence two or three small stones, he dressed it up again. From this instant he was freed from the severity of his pain, and, in a reasonable time, was able to walk about his chamber, having been in no danger either from flux of blood or fever. Marchetti continued to dress the wound for a considerable time, but was not able to close it up, it soon becoming fistulous from the continual flowing of the urine through the sinus; but, being in all other respects restored to health and vigour, and the matter discharged being little, he took leave of the professor, and returned to Venice under the care and management of his wife, who, one morning, as she was dressing the sore, fancied she felt something hard and rugged as she wiped it, upon which, examining a little more carefully with her bodkin, which served her instead of a probe, she found it to be a stone of the figure and magnitude of a date-stone, which, being removed, he never after complained of the least uneasiness in the part."

ALCOHOLIC REMEDIES IN TYPHOID FEVER.—A leading article in the *Medical News* of the 24th of December 1887, in referring to

"an outline of the modes of treatment in typhoid fever pursued at twelve of the chief hospitals of this country," says: "The use of alcohol is recommended by all the writers, and we have, as yet, no substitute for it in the progressive asthenia of the disease." Before knowing how much value can be awarded to this apparently united testimony in favour of alcohol in typhoid fever, it would be necessary to know how many cases of the fever any one or all of the writers alluded to have actually treated without alcohol, that they might have a fair basis of comparison of the results. We have tried the experiment of treating typhoid fever and all other general fevers without using alcoholic remedies, both in hospital and private practice for thirty years, and have found no difficulty in finding better remedies for counteracting the asthenia of this fever, and obtaining a higher ratio of recoveries than has ever been obtained with its use. With iodine as a general alterant and antiseptic to counteract the molecular degeneration in the tissues and the blood, and the choice of cardiac and vaso-motor tonics from the class of remedies represented by digitalis, coffee, tea, strychnia, strophanthus, carbonate ammonia, camphor, etc., according to the special symptoms of each case, and vigilant attention to the local complications that are in many cases more dangerous to the patient than the general disease, with an equally vigilant attention to the proper administration of simple nourishment and pure air, we have no place or need for the use of alcohol as a remedy in these cases. And of a considerable number of intelligent and active practitioners who have tried the same experiment, though for a less number of years, I have not yet found one who was not fully satisfied with the result.—*Journal of the American Medical Association*, Leading Editorial, 31st December 1887.

MEDICINE AND MONEY.—From the *St Louis Medical Journal* we clip the following maxims:—The physician who values his time and advice is the man who is appreciated. He who sells himself for nothing generally gets all he is worth. He who goes for half price, when patients are able to pay a reasonable fee, goes for more than he would bring on the market. A community never values a physician higher than he values himself. He who works for love may gain the reputation of a Good Samaritan, but Good Samaritans are not all good doctors.

"ABOUT THE SIZE OF A —."—In a letter to the *Philadelphia Medical Times*, an English physician calls attention to the unscientific terms used by physicians when describing the size of tumours and other pathological objects. He says: "Such time-honoured comparisons as a 'foetal head' (I thought they varied a great deal), or 'a millet-seed' (I never saw a millet-seed, but I believe it to be about as big as a miliary tubercle), we cannot hope to get rid of before the millenium. But when it is a mere matter of length and breadth, could we not state the fact in inches or millimetres? I

am moved to write to you by having been just now brought up by the statement that something or other was 'about the size of a dollar.' I was interested in this case up to that point, but I got lost then; the only dollar I ever saw was a tiny gold coin, about the size of a threepenny bit; I beg pardon, about 15 millimetres in diameter. From the context, I think that the article mentioned must have been bigger than that, but I am not sure, and the statement bewilders me and destroys my interest in the case. Another time I came across the statement that a tumour was 'about the size of a dough-nut.' Now as to a dough-nut my mind is blank. Is it a nut that grows on a tree—a cocoa-nut, or a walnut, or a hazel-nut? or is it the other half?—'dough' suggests it is a kind of cake—a 'bath-bun,' or a 'tea-cake,' or, perchance, a cake 'about the size of a piece of chalk?' as the witness said in the famous trial. It is bad enough, sirs, to have to learn two or three languages in order to keep ahead of the progress of medical science. Why should we, who speak the same language, throw these entirely unnecessary obstacles in each other's way? I hope you will lend your powerful influence to induce our American cousins to give their measurements in terms of some scale which can be mutually understood." The writer adds in a postscript: "*P.S.*—Since writing the above, a lady has told me that a 'dough-nut' is a kind of bun about the size of an orange, brown outside, jam inside, very good to eat, and 'they cost three halfpence.' Upon this I wish to ask: 1. Tangerine or Seville orange? 2. Is she right? 3. Granting 1 and 2, is this a satisfactory way of arriving at a pathological fact?"—From the *Brooklyn Medical Journal* for March 1888.

ROOM TO BITE.—A Juteopolis paper is responsible for this:—A country woman entered a chemist's shop the other day, and asked for two leeches. The man of pills asked if she had anything to put them in. "Ay," she said, "I hae brocht the cairt."—*The Chemist and Druggist*.

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Part First.

ORIGINAL COMMUNICATIONS.

I.—THE THIRD STAGE OF LABOUR: CRITICISM OF PAPERS BY COHN, CHAMPNEYS, AND BERRY HART.

By A. H. F. BARBOUR, M.D., F.R.C.P.E., Lecturer on Midwifery and Diseases of Women, Edinburgh Medical School; Assistant Physician for Diseases of Women, Royal Infirmary, Edinburgh; Junior Assistant Physician to Royal Maternity and Simpson Memorial Hospital; Inspector of Examinations in Midwifery.

(Read before the Edinburgh Obstetrical Society, 11th January 1888.)

IN reviewing obstetrical literature it is very interesting to notice how now one subject and then another comes prominently forward. If we had before us a bird's-eye view of, say, German, French, Italian, American, English literature, we should note how some topic crops up and, so to speak, holds the field for a time, and that the interest in it then dies down again; and it is very instructive to trace the discussion to its original source. In making a bibliography of recent literature, I have observed how a subject is brought prominently forward; a paper on the same theme in another language soon appears, perhaps expressing the very same ideas. The attention of a wider circle of observers is thus drawn to the question, and we soon have a host of contributions to the literature if not to our knowledge.

The Third Stage of Labour has for the last seven (and especially for the last three) years excited an unusual amount of interest. Up to 1880, the principal real contributions to our knowledge group themselves round the following dates and names:—*Baudelocque*¹ (1781), *Credé*² (1853), *Schultze*³ (1865), *Lemser*⁴ (1865), *Duncan*⁵ (1871). All of these papers dealt only with the physiology and management. The anatomy, which forms the foundation of these, had not been touched.

In a paper which I read a few months ago, I took up the anatomy and some points in the physiology. In this paper I

¹ "L'Art des Accouchements."

² *Klin. Vortrag. Ueber Geb.*, 1853.

³ "Wandtafeln zur Schwangerschaft und Geburtskunde."

⁴ *Die physiologische Lösung des Mutterkuchens*, Giessen, 1865.

⁵ "On the Mechanism of Expulsion of the Placenta," *Edin. Med. Jour.*, April 1871.

wish to deal with the three most recent contributions on the physiology. The three contributions are by Cohn, Champneys, and Berry Hart respectively. Cohn's is based on a large number of observations made on patients while the Third Stage was going on; he passed the hand *into the uterus* to ascertain when and how the placenta was separated. Champneys' paper is based on observations made in the same period; he passed the hand into the vagina, and stained the first part that presented at the os uteri. He also measured the quantity of blood lost. Hart's paper starts with the behaviour of the placenta in placenta prævia, which has suggested to him a new view of the mode of separation of the normally situated placenta.

Cohn's paper¹ forms an important contribution to the physiology. He gives the result of the examination of a large number of cases in the Berlin Maternity while he acted as Schroeder's assistant there.

The first point he takes up is, *When does separation begin?* and he writes as follows:—"It is very difficult to determine the point of time, because when we pass the hand into the uterus (when possible past the lower extremities being born) we can feel very frequently one piece of placenta projecting into the os externum. . . . While Lemser in 71 per cent. of his cases could feel the placenta immediately after the expulsion of the child separated in the os externum, and only in four out of 168 (of which in two cases the placenta was separated before the commencement of the pains of the Third Stage) did some time pass till this happened; while Schroeder-Stratz in only four out of 120 cases² found the placenta still adherent after the birth of the child; I have come to different results. *I succeeded in a whole series of normal cases, when the period of expulsion proceeded gradually, in establishing adhesion in toto.* When the head came over the perineum, I extracted the trunk very slowly, and found (1) in every case that the uterus drew itself together gradually, as if following the child, without any pain; (2), then I found, on immediately passing the hand in, the placenta folded (something like Schroeder-Stratz's section), without any central or lateral bulging. The same observation I could make on finishing gradually several breech presentations and a great number of extractions after term. *Every time I found the placenta attached through its whole extent in its characteristic folded form.*"

I have italicized the most remarkable statements in this para-

¹ "Zur Physiologie und Diätetik der Nachgeburtperiode," *Zeit. f. Geb. u. Gyn.*, Bd. xii., Hft. 2.

² This mode of putting it is misleading. What Stratz says is,—"In only four of 120 cases in which the hand was passed into the cavity within two minutes after the birth of the child was there no separated *part* of the placenta sticking through the contraction ring." The italic is ours. Reference to the case which I gave in my last paper will show that the lower edge of the placenta may project free while the rest of it is unseparated.

graph—remarkable because they contradict *in toto* the results of Lemser, which have hitherto been taken as the basis of our knowledge of the physiology of the Third Stage.

As to the *cause of separation*, he says that the chief factor is the "Pains of the Third Stage," in which we entirely agree with him. But when he describes the *mode* of this as by the production of a hæmatoma and the part the latter plays in the Third Stage, he enters upon debatable ground. He gives up the idea of there being a uterine cavity into which the placenta can be made to bulge by the uterine contractions. In my paper on the "Anatomy of the Post-partum Uterus" I had pointed out the erroneousness of this conception, as follows:—"After the foetus has been expelled, we are liable to think of the uterus as an empty cavity, and this gives rise to erroneous deductions; thus Ahlfeld speaks of the placenta as bulging into the uterine cavity. Plate III. (which shows the uterine walls in contact with the placenta all round) gives us a more correct conception of the condition. The anterior uterine wall rests on the placenta, just as the posterior one does; if the placenta were made to bulge, it would press the posterior wall back as much as it pressed the anterior one forwards." Thus it is evident that a hæmatoma will not form during a pain. This is also Cohn's conclusion, for he says: "The centre of the placenta did not raise itself during a pain. It is evident why this did not happen, when we make clear to ourselves that in a general contraction of the uterus no uterine cavity can form; both uterine walls are kept from contact with each other by the placenta only, and thus the placenta is held pressed between the uterine walls with a force proportioned to the pain." Thus far quite right. What he says is a repetition in other words of what we said above; but he goes on,—"*With a diminution of the pain the conditions at once change; the uterus becomes flaccid, the placenta as far as it is separated (in this case at its centre and lower border)*"—referring to a case just mentioned—"sinks by its own weight into the uterine cavity which it forms for itself by pushing the lax walls forward; at the same time the retro-placental space is by aspiration filled with blood. The quantity of blood enclosed on all sides is not large; normally there comes out only so much blood as is necessary to fill the empty space. The normal blood-pressure is insufficient actively to lift the placenta further, and at the same time to lift the apposed uterine wall." There is evidently some confusion of ideas here. It is not quite clear whether it is the action of gravity drawing the placenta downwards and producing a vacuum or the blood-pressure alone which causes the blood effusion. We note, however, that Cohn takes up an entirely new ground as to the time and mode of production of the hæmatoma. The uterine contraction has nothing to do with it; it does not form as the result of bulging into a uterine cavity while a pain is on; nor does it form in the interval as the result of the placenta's having been pushed onward by the pain: it is due to the *weight of the placenta* favoured by the blood-

pressure. Now there is no evidence whatever that the placenta sinks downwards by its own weight. (We assume, of course, that the patient is lying on her back, and that the placenta is *in situ* inside the uterus, not in the vagina.) Nor could it do so, even supposing a patient were erect, because it is assumed that it is only in part separated. I do not understand what he means by his reference to the blood-pressure, unless it be that if the vessels not being closed by the contraction and retraction of the site, there will be bleeding from the raw surface on the separated area, which is self-evident.

He mentions some interesting facts with regard to turning. "Most frequently after turning, with careful extraction, he found the placenta still attached." He believes that asphyxia and death in turning are not due to separation of the placenta, but to pressure on the cord. In 30 cases he paid special attention to this, and in all except one found there was no hæmorrhage.

With his general conclusion, "that the pains of the Third Stage by themselves alone produce the separation of the placenta," we entirely agree. It is interesting also to note that he does not believe that any change in intrauterine pressure, such as Stratz maintained, causes separation of the placenta. Thus he says, to repeat, "it is the pains alone which do this, apart from the passive diminution of the uterine wall and the supposed changes in pressure post-partum."

Champneys has recently made a very important contribution to the Study of the Mechanism of the Third Stage of Labour, in three papers read before the London Obstetrical Society, and reported in the Transactions of that Society for March to July 1887, to which the pages quoted refer. The third of these papers, which treats of the Separation and Expulsion of the Membranes, does not concern us at present. For the benefit of those Fellows who may not have seen the London Obstetrical Transactions for these months, I must, before proceeding to criticise *Champneys'* views, give an abstract of his first two papers.

With regard to the Separation of the Placenta, he gives a comprehensive statement of our present knowledge with a criticism of the views of different observers; and in treating of its Expulsion, he in addition brings forward the result of a large series of original observations which he has made.

In summing up our present knowledge, he draws attention to the well-known clinical fact that, while the child's head may be born an indefinite length of time without asphyxia, yet when it is fully born we observe that after some interval it becomes suddenly livid. This he ascribes to commencing detachment of the placenta. He then gives the results of *Lemser*, who found in 120 out of 168 cases the lower edge in the os uteri immediately after delivery, in 38 more within 9 seconds, and in no case any attachment after the birth of the child. He accordingly concludes that "the normal

detachment of the placenta, if Lemser's observations are correct, is therefore complete at the end of the Second Stage of Labour."

He next takes up the facts derived from operations on the pregnant and parturient uterus, quoting eight cases from Ahlfeld, Leopold, Sanger, and myself. With regard to these, he concludes that the conditions are altogether too unnatural to argue from, whether as regards bleeding from the placental site or the behaviour of the site in normal cases. Uteri from these operations, he says, are very different from uteri at the end of the Second Stage¹:—"One point, however, seems to us not to have been remarked, and that is, the strange contrast between the uterus at the end of the second stage of labour and the uterus after Cæsarean operation:

1. At the end of the second stage of labour the uterus is "up to the navel;" it is not markedly flattened from before backwards, and the placenta is already detached according to the only observations we possess—those of Lemser.

2. A uterus after Porro's operation is certainly not longer, probably considerably shorter; it is markedly flattened from before backwards, and the placenta is firmly attached."

And a few pages further on,² in criticising the Porro uteri, and while admitting that in them the placental site may retract to an area of $4\frac{1}{2}$ in. by $4\frac{1}{4}$ in. without in any degree detaching the placenta, he says,—“It is not known, and it would be hard to ascertain, what is the actual size of the placental site at the end of the second stage in normal cases of labour, at which time it would appear, from Lemser's observations, that the placenta is completely detached. This detachment seems to take place at this time, whatever the size of the placenta and its thickness, and therefore stiffness, may be We know also that, practically speaking, the detachment of the placenta is absent or extremely imperfect until after the birth of the child is complete; as soon as this is complete we have also complete detachment of the placenta, whatever its size, if Lemser is correct.”

He next classifies and then criticises the theories of the cause and mode of placental detachment, as follows.

As to cause: A. By contraction and retraction alone, through reduction of area of placental site (Baudelocque, Duncan, Schultze, Dohrn). This, he says later on, is a *vera causa*, in support of which position he refers to the method of procuring separation by exciting these.

B. By contraction and retraction indirectly, *i.e.*, by aspiration, squeezing of blood towards the surface, rapid diminution of intra-uterine pressure consequent on birth of child (Ahlfeld). He rejects aspiration because there is no evidence of firmer attachment round the edge, and because contraction of site would increase initial concavity of placenta, not make it bulge in opposite direction. There is no evidence of squeezing of blood towards surface, except retardation of foetal pulse during a pain;

¹ P. 126.

² Pp. 133, 134.

but rapid diminution of intrauterine pressure is probably a *vera causa*, though subsidiary. "In favour of it may be alleged the cases of placental detachment and flooding which sometimes follow the too rapid evacuation of the uterus, especially in powerless labours in feeble multiparæ with dilated passages, when the uterus is unusually *large* at the time. Mere evacuation of the waters while the foetus is still *in utero* (as in neglected shoulder cases), is not usually competent to effect this detachment—witness the cases in which children are born alive under such circumstances. This seems to point to detachment not taking place from rapid evacuation alone unless the internal surface is capable of rapid diminution simultaneously."¹

C. By detrusion (Lemser, Barbour, Ruysch). In criticising detrusion, he says,—“It is upheld by Barbour by a process of elimination of other theories, but, as it seems to us, on insufficient grounds. Lemser founded his belief in this process on experiments on rabbits which cannot be applied to the human female. Barbour introduces his belief *à propos* of a consideration of uteri removed by Porro’s operation, which we also cannot accept as evidence, for reasons given above.

“Moreover, such a process of detrusion, though conceivable when the placenta is implanted on the front or back wall of the uterus, and expelled edgeways (according to Duncan’s description), is hardly conceivable in fundal attachments without the formation of a sub-placental hæmatoma and expulsion of the placenta, foetal surface onwards and partially or entirely inverted, both of which details are rejected by Barbour. This question is intimately associated with that of the *expulsion* of the placenta, which we are not now considering.

Lastly, it presupposes the absence of any uterine cavity, deduced by Barbour from a consideration of uteri removed by Porro’s operation. Evidence derived from this source is not to be accepted unless in accordance with known clinical phenomena, as we have above said.”²

He then declares the facts from Porro uteri not to be in such accordance,—the “known clinical phenomena” have been already given by us in the first quotation.

The modes of detachment are thus classified and criticised:—

A. *According to situation of placenta* (Baudelocque).—This, he says, is not founded on direct observation, nor is it probable that site determines entirely different modes of detachment.

B. *From edge* (Ribemont), based on experimenting with a clay placenta on a sheet of india-rubber, and only operating when adhesion of placenta is uniform and retractility and contractility act regularly. Champneys had come to the same conclusion from behaviour of pasteboard discs fixed by paste on an india-rubber bag, but says that we have neither uniform adhesion nor uniform contractility and retractility in nature.

¹ Pp. 135, 136.

² P. 136.

C. *From centre* (Solayrès and Ahlfeld), already rejected under aspiration.

D. *According to firmness of attachment of its several parts* (Ribemont).—This view is accepted as philosophical.

The great question is whether separation is independent of rupture of the utero-placental vessels as a cause. "The view that contraction and retraction of the placental site is the great cause of the separation of the placenta is confirmed by all our clinical evidence;" and he begins the next paragraph with—"It is certain that between separation of any part of the placenta and the retraction of the corresponding part of the placental site, there must be a period, however short, during which hæmorrhage may take place."¹ He rejects Dr Matthews Duncan's view that separation is unattended with hæmorrhage, and says, "We cannot . . . quite accept the view that an absolutely bloodless third stage of labour would be ideal. It seems to us more in accordance with physiology to say that the ideal process would be one in which just so much blood should be lost as would make the difference between the presence and absence of a gravid and non-gravid uterus—between the uterine circulation before and after delivery."²

And he concludes,—"*In the meantime, certain facts concerning the size and shape of the uterus at a time when the placenta is known to be detached,*³ point in the direction that hæmorrhage to a moderate amount, or rather rupture of the utero-placental vessels from vascular causes, and not only from the retraction and contraction of the placental site, plays a certain though subsidiary part in the mechanism of the detachment of the placenta."⁴

This short abstract will enable the Fellows to follow the drift of his first paper, and I have quoted in full passages which are open to criticism. In the first place, we cannot regard the fact that the child's head becomes asphyxiated while lying outside the vulva as proof that placental detachment has begun; for this result would be equally produced by compression on the cord or interference with the circulation of the placental site, the result of retraction without separation.

He takes Lemser's observations as the basis of his conclusions: at first, as you will have noticed, provisionally (p. 134, "It would appear from Lemser's observations. . . . If Lemser is correct"), but afterwards as final (p. 141, "At a time when the placenta is known to be detached"). In my last paper, I showed that there is reason to doubt the conclusiveness of Lemser's observations, a position which is strengthened by Cohn's results just brought before the Society.

With regard to the difference between the shape of the Porro uterus and that of the uterus clinically during the Third Stage, I referred to that point also in my last paper; but I may again mention that the clinical Third Stage uterus between the pains is

¹ P. 139.² P. 140.³ The italics are ours.⁴ Pp. 140, 141.

somewhat flattened antero-posteriorly, and that the antero-posterior flattening of the Porro uterus is increased by the process of preparing Porro uteri for making sections. Like any other tissue, the post-mortem uterus is flaccid, and settles and spreads itself out upon the flat surface on which it is laid during gradual hardening.

I do not see the principle upon which he classifies the theories as to the cause of placental detachment. He makes three groups: A. By contraction and retraction *alone*, through reduction of area of the placental site, and he cites Baudelocque's expression—"The womb is the principal agent; its action alone produces the separation of the placenta;" as also Duncan, Schultze, and Dohrn.

B. Contraction and retraction *indirectly*—causing (a.) aspiration; (b.) squeezing of blood to surface; (c.) rapid diminution of general intrauterine pressure.

C. By detrusion.

Now, detrusion should not thus be placed on the same line of division as contraction and retraction, for it, equally with "diminution of placental site," "bulging of placenta producing hæmatoma, etc.," is one of the results of "contraction and retraction:" just as a child is not "extruded" *without* contraction and retraction in the Second Stage, so the placenta is not "detruded" without them in the Third.

A more systematic classification would be—

1. Contraction and retraction operating at the placental site alone:

(a.) By diminution of its area alone;

(b.) By causing the placenta to bulge, so that a vacuum is produced (into which the atmospheric pressure forces blood);

(c.) By squeezing the blood to the surface.

2. Contraction and retraction operating, not only at the site, but all over the uterus, in virtue of the fact that the uterus grips the placenta all round.

You will notice that we have omitted Champneys' B. c. This, if it occurred, could not be the result of contraction and retraction during the Third Stage (which would increase rather than diminish intrauterine pressure), but would be the result of the pains of the Second Stage. In criticising Stratz's paper, we showed that there is no evidence that there is rapid diminution of intrauterine pressure on the birth of the child; and if there were, it would cause inversion of the uterus, not detachment of the placenta from its wall.

I did not use the term "detrusion" in my first paper, nor do I think it advisable to do so unless we agree upon a definition of the term. Champneys says that I "adopt the view that separation is due to detrusion *alone*," while even adopting the term "detrusion" (which I do not), the expression that I used was, "These preparations point to the third as the *chief* factor." I must confess that the remarkable and entirely new fact, that diminution might take place to so great an extent without separation made

me under-estimate the effect of contraction and retraction at the site; but I believe now that this latter plays a considerable rôle, if not in actual separation, at least in preparing the way for it by loosening the connexion between the placenta and the uterine wall. Champneys also says that I reject the formation of a sub-placental hæmatoma and the expulsion of the placenta foetal surface first in a fundal attachment, although in my first paper¹ I say that it is just with a fundal attachment that we might have this happening; and in a subsequent paper² I draw attention to the relation of fundal attachment and hæmorrhage as a subject specially worthy of investigation.

In his second paper—"On the Expulsion of the Placenta"—Champneys gives the results of 70 most carefully recorded observations made on patients at the London General Lying-in Hospital. The presenting part of the placenta was stained with eosin, and measurements taken to give the position of the stain on the placenta and the position of the rent of the membranes (which gives us roughly the position of the placenta in the uterus). The quantity of blood lost before expulsion of the placenta and with it was also recorded. The whole results are given in an elaborate table, which forms an important contribution to the physiology of the Third Stage of Labour.

The facts recorded in the table are very valuable and worthy of study, but I question whether they bear out the conclusions of the paper. The first important result which he establishes is that in the great majority of cases (59 out of 69) a point on the foetal surface within two inches of the lower edge presented. "This mode of presentation," he says, "cannot be accounted for by hitching up through resistance to the detachment of the membranes by the lower edge of the placenta, as Dr Duncan infers, for the upper edge would find the same obstacle (resistance to the detachment of the membranes) to its descent." As to the conclusion, that a point within two inches of the lower edge of the placenta presents, we have nothing to say. It is, however, noteworthy that it is a rare occurrence for a higher point to present. Now, presentation two inches from the edge shows an amount of inversion scarcely worth the name. It is certainly not the inversion described by Baudelocque and figured by Schultze. Nor is his reply satisfactory to Matthews Duncan's statement that this small inversion is due to hitching of the membranes: for adhesion of the membranes at the upper edge will act quite differently from adhesion at the lower—at the upper end simply retarding descent, at the lower edge both hitching and retarding.

¹ "The Anatomy and Relation of the Uterus during the Third Stage of Labour, etc.," *Edin. Med. Jour.*, Sept. 1884, p. 237.

² "The Membranes in the Third Stage of Labour," *Edin. Med. Jour.*, June 1885, p. 1089.

His inquiry, however, specially relates to two points,—(1.) The relation between the point of the placenta which presents and the position of the placenta *in utero*; and (2.) The amount of blood lost.

As to the first of these, whether there is any relation between the point on the placenta which presents and the position of the placenta in the uterus, he draws up the following summary from his detailed table, in which A = average height of presenting part, and C = shortest distance from the edge of the placenta to hole in membranes (we omit his columns B and D as not essential):—

	A.	C.
(1.) Presenting part of placenta within 1 inch of its lower edge (23 cases),	$\frac{3}{4}$ in.	$3\frac{1}{2}$ in.
(2.) Presenting part of placenta between 1 and 2 inches of its lower edge (19 cases),	$1\frac{1}{4}$ in.	4 in.
(3.) Presenting part of placenta between 2 and $3\frac{1}{2}$ inches of its lower edge (9 cases),	$2\frac{3}{4}$ in.	$5\frac{1}{4}$ in.

“It will be seen,” he adds, “that a steady increase is noted in column C, which represents the lowest part of the placenta. In other words, *the presenting part varies its position with the position of the placenta. The higher the placenta, the higher the presenting part, and vice versa.*”

Here there is used the method of averages, of which we shall have something to say immediately. But even supposing that we were to accept that method as valid here, we should need to add to this summary a fourth group of his cases—those presenting by the edge itself or amnion below it; which group gives an average height of insertion (3·8 in.) higher than the group of cases which present by a point between the edge and 1 inch above it (3·5 in.). This fact disturbs the “steady increase” of the summary, which, thus completed, runs as follows:—

	A. ¹	C.
1. Presenting part of placenta edge or amnion below the edge (16 cases),	0 in.	3·8 in.
2. Presenting part of placenta within 1 inch of its lower edge (23 cases),	$\frac{3}{4}$ in.	3·5 in.
3. Presenting part of placenta between 1 and 2 inches of its lower edge (19 cases),	$1\frac{1}{4}$ in.	4 in.
4. Presenting part of placenta between 2 and $3\frac{1}{2}$ inches of its lower edge (9 cases),	$2\frac{3}{4}$ in.	$5\frac{1}{4}$ in.

¹ Champneys' position is, let me again point out, that as A (average height of presenting part) increases, C (height of insertion) should also steadily increase.

But we do not accept this line of reasoning as valid here. For, as has been said, in the inquiry as to the presenting part of the placenta and the amount of blood lost, the method of averages is applied. This method is applicable only when the extent of variation is small in proportion to the resulting average, and so distributed that the number of cases below the average does not differ greatly from the number above. Where the conditions are not fulfilled, the method of average gives distorted and even untrue results. In such a case only the detailed statement gives an adequate view; and I have drawn out the following summary of this extremely valuable table of cases, giving height of placenta for every half-inch, and height of presenting point above edge of placenta for every quarter-inch.

Table showing the relation between height of Placental Insertion and height of Presenting Point above the edge of the Placenta.

Height of Placental Insertion.	Number of cases at each Height of Presenting Point above lower edge of Placenta.															Total number of cases at each Height of Placental Insertion.
	0 in. or below edge.	$\frac{1}{4}$ in.	$\frac{1}{2}$ in.	$\frac{3}{4}$ in.	1 in.	$1\frac{1}{4}$ in.	$1\frac{1}{2}$ in.	$1\frac{3}{4}$ in.	2 in.	$2\frac{1}{4}$ in.	$2\frac{1}{2}$ in.	$2\frac{3}{4}$ in.	3 in.	$3\frac{1}{4}$ in.	$3\frac{1}{2}$ in.	
0 inches.	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
1 "	4	1	...	...	...	2	...	1	...	...	...	...	...	...	...	8
$1\frac{1}{4}$ "	1	...	2	...	...	...	...	...	...	...	...	...	...	...	...	3
2 "	1	...	...	1	1	...	1	...	...	...	...	...	...	...	...	4
$2\frac{1}{4}$ "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3 "	1	...	...	...	4	...	1	...	2	...	...	...	...	...	1	9
$3\frac{1}{4}$ "	1	...	...	...	...	...	1	...	1	...	...	...	...	...	...	2
$4 "$	2	...	1	2	1	1	1	...	1	...	1	...	...	...	...	10
$4\frac{1}{4}$ "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5 "	2	...	...	1	...	1	1	...	3	1	1	1	...	...	...	11
$5\frac{1}{4}$ "	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	2
6 "	...	...	1	1	1	1	...	...	1	...	...	...	1	...	...	6
7 "	1	...	...	...	...	...	...	1	...	...	...	...	1	...	1	4
8 "	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1
9 "	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Total number of cases at each height of presenting point above lower edge of Placenta.	16	1	5	5	7	5	5	1	9	1	3	1	2	...	2	63 cases.

A study of this table will show that there is by no means a uniform relation between the height of the presenting point on the placenta and the height of the placenta's insertion on the uterus. The first column shows those cases which presented by the edge or below, and we find that these include placenta at almost every height of insertion from the lowest (in which the edge was 0 inches from the rent) to the highest (in which it was 9 inches from the rent). Similarly, we find that placenta situated a medium distance up the uterus, say the horizontal lines for 4 in. and 5 in. (there are none at $4\frac{1}{4}$ in.), we find on both of these lines placenta presenting by almost every point from the edge itself to $2\frac{1}{4}$ inches above it.

The failure of the method of averages is more obvious in the inquiry as to the amount of blood lost. Champneys finds an average of 12 oz. by taking the total loss in all the cases and dividing by the number of cases. Setting aside 3 cases in which no amount is recorded, we have 67 cases left. These cases fulfil neither of the conditions under which the method of averages is applicable and useful. In the first place, the differences are not so equally distributed that the number of cases below the "average" is about the same as the number above it; for we have 45 cases below to set against only 20 cases above. This inquiry presents a case analogous to that of reporting on the height of a community. It would be manifestly misleading to take the total heights and divide by the number of individuals to give a so-called average height; for we might have a great majority of the people somewhat below the average, and a minority of exceptionally tall individuals above it; so that such an average would convey a most erroneous impression of the actual stature of the community. The only instructive way of looking at the height of a population as a whole would be to seek for a *mean* height—that stature which would most nearly divide the community into two equal parts, so that about the same number of the population was above and below the mean respectively. An average in such a case gives a purely hypothetical result, that had the gross total been equally distributed the men would have been of a certain height; the mean, as above described, states an actual fact about the real case. It would, of course, be better still to have a more detailed classification.

In the second place, the extent of variation in the different cases, far from being small in proportion to the resulting average, is very great indeed. In a few cases the loss was very considerable—in 7 from 30 to 38 oz., three times the average; and it is these which bring this latter up to 12 oz. It is doubtful whether cases of excessive loss should be included at all. A practitioner whose daily round of practice was only about three miles would by his four weeks' holiday at the Washington Congress add 6000 miles to his total journeyings during the year; but there would be a touch of humour were he to divide this total by the number of days in the year, and say that his daily round averaged twenty miles.

Berry Hart in his paper¹ brings forward a very novel theory of the mode of separation of the placenta. He makes several statements which are open to criticism. He says that we know that diminution in the placental site does not separate the placenta—a fact which (he says) my preparations demonstrate; but we cannot let this pass without qualification. These preparations show only that diminution up to a certain point (4 in. by $4\frac{1}{2}$ in.) takes place without separation. It is quite evident that there must be

¹ "Note on the Mechanism of the Separation of the Placenta, etc.," *Ed. Med. Jour.*, July 1887.

a theoretical limit beyond which diminution cannot go without separation; and it is quite possible, though not yet proved, that 4 in. by $4\frac{1}{2}$ in. comes near this limit. We might go a step further and say that diminution up to 4 in. by $4\frac{1}{2}$ in. may prepare the way for separation, but of this in another paper.

Further, he says the detrusion theory is plausible, and that he has advocated it, but gives it up now for the following reasons:—“We find in some cases of adherent placenta the lower part of the placenta separated and not the upper. The separation of this lower part is not a detrusion. In abortion cases I have seen the whole membranes separated, and only adherent at the fundus uteri.” This assumes that the detrued body in these two cases is rigid, which it is not. Were the placenta or ovum in abortion like a hen’s egg, it is self-evident that the lower end of the egg could not move in the slightest degree while the upper end was fixed. But any one who has handled a fresh placenta or a recent abortion knows that they are both compressible and capable of elongation. If a body of such consistence in a flaccid tube and adherent be pushed onwards by squeezing the walls, it does not at first slide *en masse*; but the lowest edge of it first gives or yields, as being in the direction of the pressure and also the line of weakest resistance. In my first paper, describing the action of the uterus on the placenta, I hinted at this. The placenta, I said, is “*surrounded on all sides by a resistance which is equal except along one line, viz., that running through the plane of contact of the anterior and posterior walls of the lower uterine segment below the placenta.*”

With regard to this question, Case VIII. in my former paper is of interest. Here the lower part moved downwards while the upper was still adherent. This objection to the detrusion theory was also brought forward by Matthews Duncan in the discussion of the London Obstetrical Society on Champneys’ paper. “A Porro example had been recently exhibited by Dr Galabin, in which the lowest part of the cake had been separated, and this had been held as evidence of detrusion. Now, he held that it was hostile to the detrusion theory, for he could not imagine detrusion pushing off the lower flap without pushing off all above it. How could the lowest part be propelled by a part above which was itself not moved?” Now, while we have no direct proof in support of the detrusion theory, I must say that this interesting fact, far from being hostile to it, would tend to make one a believer in it; for (as has been just said) this is exactly the way in which one should expect a body like the placenta to behave.

In his “Probable Mechanism of Separation” Hart says,—“The placenta separates, not from diminution of the placental site, but during the expansion in area of the site after retraction;” and again, “When the placental site increases in area after retraction.” . . . Retraction is here evidently a misprint for contraction, for there is no increase in area after retraction, inasmuch as that term

includes the retention of diminution in area after contraction has passed off as well as continuous diminution independent of contraction. "Contraction," says Matthews Duncan, "is temporary; retraction is permanent and progressive." Taking, then, the meaning here to be "expansion after contraction has passed off," no evidence is given that the placenta cannot follow very slight increase of its site—very slight, because the site does not expand to anything like its former area, as retraction prevents this.

In the same paragraph is given a second explanation of increase in area of site after the contraction has passed off, which we must keep quite distinct, viz., the return of blood to the placental site. "The foetal portion has been aspirated by the child, and the uterine muscle must increase in bulk more rapidly than the placenta, as the blood returns to it first." There is no evidence that the maternal portion of the placenta has the blood driven out of it by a pain; the uterine muscle is rendered anæmic, as frozen sections tell us, but no proof has been advanced that the maternal placenta becomes so. If one were to theorize, it appears as if just the opposite would happen—that the muscle contracting and forcing the blood out of it would make the placenta more turgid, and increase in bulk during a pain.

The chief objections to Berry Hart's theory may be thus summarized:—

1. Inasmuch as the spongy character of the placenta allows it to follow a diminution of its site from (say) 7 in. by 7 in.¹ to 4½ in. by 4½ in., it will surely allow the placenta to follow any slight expansion when contraction passes off.

2. If this theory were correct, the placenta should be separated by the relaxations after the contractions of the First and Second Stages. To this objection he answers, that in these stages the foetal circulation allows the placenta to re-expand, but that during the Third the cessation of this changes the conditions. To this I reply—

3. That the placenta remains attached where the foetus has died before labour and where consequently the foetal circulation has ceased, as is seen in the frozen sections by Schroeder and myself.

After a careful consideration of these three papers, I see no reason to depart from the position I had been led to take up:—²

"1. *The question of separation of the placenta must be kept quite distinct from its expulsion.*

"2. *Evidence is accumulating that, at the commencement of the third stage, the placenta is still as a whole or in great part attached.*

¹ I take this from my frozen section of the First Stage of Labour—"Sectional Anatomy of Labour," *Edin. Med. Jour.*, 1887.

² See "Sectional Anatomy of Labour, Third Stage," *Edin. Med. Jour.*, 1887.

"3. *Diminution in area of its site to 4 in. by $4\frac{1}{2}$ in. does not mean separation of the placenta.*

"4. *Diminution in area beyond that + the action of the uterus as a whole on the placental mass, I regard as the formal cause; the pains of the third stage as the efficient cause of separation. Blood effusion is an accident, i.e., not essential.*

"5. *During the contractions of the third stage the surface of the placenta is thrown into heights and hollows; the heights do not necessarily mean effusion below.*

"6. *The placenta descends usually with its edge or a point near its edge first, as Duncan described; sometimes foetal surface first, as Baudelocque and Schultze described.*

"*The third stage I regard as a second labour in miniature. After the pain that expels the child comes a pause, during which the placenta is still as a whole or in great part attached; then labour comes on again, and the placenta is first detached and then expelled. This second labour is not always marked off by a distinct interval from the first, sometimes one long pain expels the child and then detaches and expels the placenta.*"

II.—METHODS OF TREATING NASAL AND NASOPHARYNGEAL POLYPI.

By P. M'BRIDE, M.D., F.R.C.P.E., F.R.S.E., Surgeon to the Ear and Throat Department, Edinburgh Royal Infirmary.

(Read before the Medico-Chirurgical Society of Edinburgh, 4th July 1888.)

To avoid misconception, it must be here stated that I propose to confine my remarks entirely to operations without external incision, and to discuss only the treatment of polypi proper, i.e., mucous polypi and pedunculated naso-pharyngeal tumours. These limits manifestly exclude the formidable cases known as fibrous polypi of the naso-pharynx, and equally malignant tumours of the nose. Neither do I wish my remarks to be understood to apply to papillomatous excrescences as they occur on the inferior turbinated body.

Mucous Polypi of the Nose presenting anteriorly.

When these tumours have reached any appreciable size, it is manifestly desirable to remove them, hence we may at once dismiss treatment by interstitial injections and caustics. If from any reason this be impracticable, then such methods may be considered, and I have little doubt that the destruction of even large growths may be safely, if slowly, accomplished by means of chromic acid used in the way to be described when the treatment of small growths and the pedicles of larger ones is described.

The removal of mucous polypi is easy or difficult according as the tumours are accessible or inaccessible, but to discuss the various manœuvres required in different classes of cases would be but to repeat what is found in any standard special treatise. My main object is to compare the various operative procedures now adopted, with a view to elucidating their respective advantages and disadvantages. These methods are evulsion by means of forceps and removal by snares, which may be cold, or heated by the electric cautery.

(1.) *Forceps*.—This method has, I believe, no advantages to recommend it. If practised without illumination, it is, unless for exceptional cases, unscientific, and I would almost say unjustifiable. If, on the other hand, the forceps be guided by the eye, their use is still open to the objection that more pain is caused by opening the blades than by the introduction of a delicate wire snare. It is true that forceps sometimes prove serviceable in those cases in which the polypus, although seen by means of the nasal speculum, cannot be enclosed in the loop of the snare; but such cases are certainly uncommon.

(2.) *Snares*.—No doubt all specialists are now agreed that the snare is the best weapon wherewith to attack nasal polypi. Further, there is a general consensus of opinion that the loop should be composed of piano wire, which, owing to its resilience, can be much more conveniently used within the nasal cavities than any of the more flexible varieties. Here, however, the unanimity ends.

The advantages claimed for the electric snare, used at a red heat, are that it is—(1), not very painful; (2), unaccompanied by bleeding; (3), a caustic. All these advantages I am willing to admit, and I am quite of opinion that it is the best method of removing those polypi which are not distinctly pedunculated—in other words, fringes of polypoid tissue attached along the whole length of the middle turbinated bone. This form of nasal polypus is, however, in my experience less common than the distinctly pyriform pedunculated variety. Even in the case of these, however, I should prefer to use the galvano-caustic snare rather than a cold wire loop did I look upon the latter simply as a means of abscission. No doubt if we can always make sure that our snare is adjusted to the very base of the tumour, then the theory of the wire heated by electricity becomes beautiful beyond conception, owing to the simultaneous removal of the growth and cauterization of the base. It is, however, almost with a pang that we turn from this beautiful ideal to the experience of practice. As a matter of fact, let us set our snare ever so wisely, the actual base or point of attachment is almost never reached in such a way as to enable the operator to cauterize the point of junction between healthy mucous membrane and polypoid tissue. (I purposely avoid the word myxomatous.) If this contention be admitted, the

statement that the electric snare acts at once as a means of removal, and at the same time cauterizes the pedicle, may be set aside as unsatisfactory, for obviously cauterization of the pedicle is useless, unless we are by its means enabled to destroy the point of junction of the growth with the healthy mucous membrane. This I maintain cannot often be done, although the attempt may under certain circumstances prove successful.

The argument as to the avoidance of hæmorrhage has certainly more in its favour. There is no doubt that if the electric snare be used at a dull red heat bleeding is avoided, and thus less delay is caused to the operator; and if the latter be hurried or of an impatient frame of mind, he is enabled to proceed with greater comfort. Perhaps, too, we may admit that from this point of view the heated snare is advantageous in cases where it is essential to clear the nose at one sitting. Whether such a proceeding is best for the patient I feel justified in doubting; for even the advocates of the electric snare admit that repeated séances are desirable,—nay, even necessary, if recurrence or the rapid enlargement of previously existing minute excrescences is to be avoided. Speaking generally, then, we may consider the avoidance of hæmorrhage a convenience, but nothing more.

Turning now to the asserted greater painlessness claimed for the heated wire as compared with other methods, I take the liberty of denying this directly. My own experience has been that patients suffer discomfort during the removal of polypi by the cold snare, not so much while the growth is being taken away as during the adjustment of the loop, and that the pain is directly proportionate to the endeavours of the surgeon to push the wire up to the point of attachment. After this, if the cold snare be used, the actual removal of the growth takes place so quickly that it is hardly felt. With the heated wire it must of necessity be different if the operation is to be bloodless—one of the chief merits claimed by its advocates—and if, further, anything like thorough cauterization of the pedicle is aimed at. I have myself given the method of removing polypi by means of the galvano-caustic loop a fair trial, and have been convinced by the experience so gained that although not extremely painful, it is much more so than the cold snare. This statement is based upon the opinions of a number of intelligent patients on whom both methods have been used by me.

So far I have stated my objections to the galvano-caustic loop for the removal of nasal polypi. In some cases, however, I have found it serviceable. Roughly speaking, its use seems to me indicated in cases where the sessile nature of the growth renders it impossible to practise the method I adopt in using the cold snare. I thus prefer it for the removal of polypoid fringes, because after the growth has been encircled and the wire slightly tightened, a firm hold may be taken of the tumour by turning on the current

and so producing a furrow at its base. This, of course, effectually prevents the wire from slipping. However, in these and allied cases I cut off the part grasped in the ordinary way.

In the common form of pedunculated polypus, however, I am strongly in favour of the cold wire snare—used not for abscission but evulsion. I need not here enter into the question of the etiology of nasal polypi, a matter still involved in mystery. That gravitation has, however, a share in their production I believe few will deny. In most cases they are pear-shaped, and the point of attachment to the mucosa proper corresponds to the thinnest part of the pedicle, or nearly so. I believe, therefore, that if the polypus be grasped firmly and traction made upon it, this is the point at which it will yield.

No doubt the nostrils can be freed from polypi either by the cold or electric snare, and also by means of the forceps used by the aid of sight; but in this case the operation is associated with unnecessary pain, and no doubt the desideratum of the good surgeon is to accomplish his object with as little discomfort to the patient as possible.

When all that can be done by these methods has been accomplished, however, the treatment is but half accomplished. If we desire to avoid recurrence we must resort to some after-treatment. Sometimes the spray of rectified spirit, as suggested by Mr Miller, is a most efficient remedy. My only objection to it is that sometimes it causes irritation, and I am not quite certain that its continued use might not injure the sense of smell. I confess, however, that I formerly used it a great deal, and that notwithstanding this fact my fear is based purely upon theory and analogy. I now generally, as do all specialists, destroy all the blue polypoid tissue which is left, after so much as possible has been removed, by one of the above-mentioned methods, either with the galvano-caustic burner or with chromic acid fused on a roughened probe. Here again I believe it is immaterial which method is used. When chromic acid is employed a solution of bicarbonate of sodium should always be at hand for purposes of neutralization if pain be excessive. It goes without saying that in all operative procedures cocaine should be employed. In some cases a combination of cocaine and menthol seems to act more efficiently than either drug separately.

As I stated in the beginning of this paper, I do not desire to read a complete treatise on the treatment of nasal polypi, nor do I intend to refer at any length to diagnosis. There is, however, one form of polypoid hypertrophy which is apt to be overlooked, and in which the nose, although quite free for respiratory purposes, is unable to detect odours. In such cases the anosmia may be due to a polypoid fringe, running along the olfactory cleft between the septum and middle turbinated body, and of course attached to the latter.

I shall now turn to the second clinical group of such nasal polypi as come within the scope of this paper, viz. :—

Post-nasal Polypi.

Sometimes nasal polypi, growing usually from the posterior extremity of the middle turbinated body, project into the nasopharynx, and can be seen by means of the rhinoscopic mirror resting on the palate. This occurs usually, I think, when the anterior nares are either naturally narrow or occluded by other growths.

Another form of post-nasal polypus grows from the edges of the choanae, and its histological structure is midway between the soft fibroma or mucous polypus and the true fibrous tumour. An important clinical feature about these growths is that they are usually single, and do not tend to recur after removal. In my own experience, too, they are generally furrowed, owing, I take it, to the fact that they have a long pedicle, and that the respiratory movements constantly drive them against the septum of the nose.

If the nostrils be wide, and the growth can be seen through the anterior nares, such polypi may be snared from in front by the aid of the speculum. If, however, the nostrils be narrow, this is not easy. In such cases an attempt to seize the tumour by means of a Jarvis' nasal snare with a bent tube, under guidance of the rhinoscopic mirror, is often successful. The parts must first be made insensitive by means of cocaine, which should also be applied by means of a bent brush to the posterior nares. The mirror being held in the left hand, and a strong light thrown into the throat, the wire is guided over the tumour and tightened. Traction is made whenever the growth is firmly grasped, and the result is that it usually comes away at the point of attachment. I believe that in these cases evulsion by means of the cold snare or forceps is infinitely superior to abscission by means of the cautery. Sometimes such tumours project below the palate, and they can then be grasped without using the mirror. The two specimens now handed round illustrate the advantages of evulsion over abscission. In both cases I passed the snare up as high as possible, and yet only succeeded in encircling the substance of the growth; had I used abscission a large portion would have been left; but, as it was, the whole growth with its pedicle was completely removed in each instance.

No doubt cases occur where these methods are unsuccessful. An attempt should then be made to slip a loop of wire through the nostril, guide it over the tumour with the finger, and finally thread it on to an ecraseur, as was done in the case from which this specimen was obtained. If this fails, the growth can sometimes be detached by the finger, in which way the example now shown was obtained. The most difficult case I have had to deal with

lately was a mucous polypus resting on the palate, which could not be reached by means of snare or forceps. The method adopted was to plug the corresponding nostril with a tightly fitting piece of lint. Thus the growth was drawn forward, and caught by means of catch forceps, over which a snare was slipped.

Fringes of polypoid tissue situated far back in a narrow nostril are often extremely difficult to remove, and impossible to thoroughly eradicate without an external operation, the grave nature of which naturally deters one from suggesting it for a comparatively trivial ailment. No doubt in these cases forceps can be used, only the whole base of the polypoid tissue can rarely be eradicated in this way. Then, again, bent burners may be introduced behind the palate, but it is difficult thus to reach any but the hindmost growths. I have not, so far, used the blunt hook, as recently recommended by Lange, who, however, advocates it more for pedunculated than sessile growths.

To meet such cases I have had made what I may term a galvano-caustic nasal plough. Although I have used it successfully in hypertrophies of mucous membrane, I have only so far employed it once for sessile polypi, and this case is still under treatment.

The after-treatment of the naso-pharyngeal tumours under discussion varies. In the fibro-mucous variety no further proceedings are necessary if the extirpation has been complete. Mucous polypi must, however, be dealt with in a manner exactly similar to that already described in connexion with those which present anteriorly. This is not so difficult as might be expected, as in many of these cases the pedicle attached to the posterior extremity of the middle turbinated body is distinctly visible from the front, if only a suitable speculum and good light be employed.

III.—A CASE OF PARASITIC FŒTUS.

By B. LANGLEY MILLS, F.R.C.S. Ed., Surgeon Medical Staff. Communicated by Dr HALLIDAY CROOM.

(Read before the *Edinburgh Obstetrical Society*, 13th June 1888.)

HAVING met with a very similar case of parasitic fœtus to that of Laloo related in the *British Medical Journal* for 25th Feb. 1888, I think a few notes on it are worth recording.

Soorunophur, aged 25 years, primipara, was delivered of a male child on 7th April 1888. Family history good. No history of fright during pregnancy. Parturition natural. The child was found to be a double monster, the growth of one-half having been arrested in utero. The autosite was perfectly formed, with the

exception of an extra lobe to the right ear. The parasite was attached to the lower part of the sternum, as in Laloo's case (*thoracopagus parasiticus*). The parasite was adherent in the mesial line above the ensiform cartilage. The woodcut, from a photograph, gives a fair idea of the condition four days after birth. Close above the adherent part of the parasite was situated a fleshy nodule about the size of a walnut, from which sprung two fleshy cords about two inches long, symmetrical on both sides and free at their extremities, containing no bones, and apparently representing the upper extremities. The lower extremities were perfectly formed, and attached by a loose fold of skin over the ensiform cartilage. They were freely movable, and apparently not connected in any way with the rudimentary upper extremities. Genital organs were present in the parasite, but in a rudimentary condition. A urethra was present, but no urine was noticed to pass from it. At the seat of the navel in the autosite there was a large pulsating purple tumour about the size and colour of the bowl of a full claret glass, obscuring the remains of the umbilical cord, and being, I think, some abnormal remnants of the pedicle of the allantois. The child died when a week old. No post-mortem examination could be obtained.



IV.—TWELVE CASES OF LAPAROTOMY FOR DISEASE OF THE UTERINE APPENDAGES.

By N. T. BREWIS, M.B., F.R.C.P.E., Physician for Diseases of Women, New Town Dispensary ; Lecturer on Diseases of Women ; Secretary Edinburgh Obstetrical Society ; formerly Assistant to the late Physician for Diseases of Women, Royal Infirmary.

(Read before the Edinburgh Obstetrical Society, 30th May 1888.)

It is now acknowledged that the removal of the uterine appendages for disease is justifiable in properly selected cases. To make the selection is not difficult. The history, of suffering, usually of some years' standing, directed specially to a certain locality, originating, perhaps, in an inflammatory attack of some part of the pelvis, either connected or not with parturition, to which sterility may perhaps be added, is of much value in helping us to make our selection.

In no class of cases is the history of more importance than in those under consideration, but in no case from the history alone are we justified in recommending operation. Physical signs are as important, but not more so than the history. By signs we can usually recognise a diseased condition to account for the history, though in some cases they may be negative. Diseased conditions may exist which it is impossible to feel by the bimanual method of examination, *e.g.*, an ovary may be diseased, and yet not be enlarged or altered in shape or specially tender to the touch, or again the diseased structures may communicate no sense of resistance to the finger. By physical examination also we have to make sure that the uterus is not the cause of the symptoms, *e.g.*, it is necessary to ascertain that sterility, which is such an important factor, is not due to disease of the uterus which, if found healthy, may be excluded, and then usually the uterine appendages may be blamed.

In most cases it is difficult, and in many it is impossible to make out, by physical examination, the exact diseased condition of the appendages, but we are generally able to say that disease exists, which when taken along with the history is enough to justify us in recommending operative interference. Here let me say, that the best method of examination is the abdomino-rectal bimanual one. When the patient is anæsthetized, and the bladder and the rectum are empty, the examiner with two fingers of one hand in the rectum and the other hand on the abdomen is able to explore the pelvis thoroughly.

With you rests the responsibility of advising that an operation should be done; with the patient rests the responsibility of having the operation performed. It is only in exceptional cases, *viz.*, those in which there is danger to life, as when we suspect pyosalpinx, that a patient should be urged to undergo the operation. I generally adopt the following plan with those who consult me. When I make up my mind that an operation is necessary, I tell the patient that such is my opinion, but that I will first try all means short of an operation before resorting to it. After a few months of palliative treatment, if the patient does not find her condition improved, she decides to undergo the operation, asks to have it performed, and thus rids you of the responsibility and necessity of urging it. In my experience patients who are anxious for the operation recover well. With regard to palliative treatment, every now and then we meet with a patient who by it gets rid of her symptoms, and becomes so much improved that an operation becomes unnecessary. On that account alone I think it should always be tried in the first instance. Occasionally you will meet with patients who are desirous of having their appendages removed without sufficient cause, but they are exceptional, and in such cases, of course, you must not allow their pleading to overrule your judgment.

The operative details of this operation are so well known to you that I will not go into them at any length, but will simply say, that I have followed Lawson Tait's teaching with one exception, viz., that I have used antiseptics in the form of carbolic lotion for sponges and instruments. When I am sure that the same certainty of cleanliness can be obtained without as with antiseptics, then I will discard them.

I will say little about the pathology of the structures removed, as it is my intention to discuss this subject in a future paper.

The following cases are in consecutive order, and are all that I have performed for this class of diseases. The first three were performed in working men's houses where the sanitary risks were considerable; the remainder, with one exception, were done in St Kessog's Home, under more favourable circumstances. The cases are narrated for the purpose of adding to the statistics of the operation, and on account of the interest which is individually attached to every case of abdominal section.

CASE I.—*Salpingitis; Prolapse of Ovaries.*

Mrs W., æt. 26, married five years, had one child, now 4 years old. When 12 years of age the patient had a severe attack of scarlet fever; she menstruated for the first time at 13. Her first menstruation was painful, and ever since each successive period has been so. During the last four years the pain has been intermenstrual as well as menstrual, in fact it has been constant. She was unfitted for her household duties, as the slightest exertion caused great pain in the right side and in the back; she could not assume the erect posture, but either sat or crawled about in a state of emprosthotonus; sexual intercourse had been discontinued for two years on account of the pain which the act evoked. Defæcation was also painful. On examination the right ovary was found somewhat prolapsed and excessively tender. The right thickened Fallopian tube was easily felt. The left ovary was lying prolapsed in Douglas's pouch, and was also very tender when touched.

I knew from the first that nothing short of removal of the appendages would cure her, but in the first place, I tried every other means of alleviating her distress that I could think of. I kept her in bed for six months, and treated her with the hot douche, glycerine plugs, blisters, tonics, anodynes, etc., but without doing her a bit of good. She then begged of me to have the operation performed, which I did in February 1886. No difficulty was experienced at the operation, and her recovery from it was uninterrupted. Both tubes were greatly thickened and dilated. The broad ligaments were much congested and were studded over with small cysts. The mucous membrane of the tubes was thickened and inflamed, and covered with a copious cheesy-

looking material. The inflammation also involved to a very considerable extent the muscular tissue.

There was no history of gonorrhœa or puerperal inflammation in this case, and there seems nothing to account for the diseased condition but the scarlet fever from which the patient suffered at the commencement of puberty.

The patient is now in good health, and is almost entirely free from pain.

CASE II.—*Cystic Degeneration of the Ovaries.*

Mrs F., æt. 30, has had five children, the youngest one year ago. Has been married nine years, and during the whole of that time has suffered from severe pain in the right side, which latterly has increased in severity. I examined her in April 1886, and found the uterus to be large; the sound passed $3\frac{1}{2}$ inches; there was well-marked ectropion and granular erosion of the lips; the right ovary was felt lying in Douglas's pouch, tender, movable, and slightly enlarged. The left was felt in normal position, tender to the touch. The hot douche was ordered, and in the meantime the advisability of having Tait's operation performed, which had been previously recommended to her by the late Dr Angus Macdonald, was to be considered.

Two months afterwards Mrs F. returned and expressed herself as anxious to have the operation performed, which I accordingly did on 19th June. She made a most excellent recovery. On the night of the operation she passed flatus, on the following day she complained of very little pain, and at night she slept for about seven hours without waking and without a hypnotic. The highest temperature registered was $99^{\circ}6$. The pulse ranged from 58 to 66 per minute. The ovaries were characteristic of cystic degeneration. The tubes were healthy.

The patient has been free of pain ever since the operation, and is now in excellent health.

CASE III.—*Papillomatous Cyst of the Right Ovary.*

Mrs C., æt. 33. Had one child, now 3 years old. Complains of pain in the back and both groins, of menorrhagia and of weakness.

Her illness dates from the birth of her child. I saw her for the first time in the summer of 1885, when she came to me complaining chiefly of menorrhagia. The uterus then was deeply placed, the sound passed $3\frac{1}{2}$ inches, and at the right side of the uterus a cyst, the size of a child's head, could be felt running obliquely upwards. I curetted the uterus at this time, which relieved her of the menorrhagia. A year afterwards she sent for me to see if I could do anything for her side which still pained her, and rendered her unable to perform her household duties. The before-

mentioned cyst was apparently unchanged in size and position. Neither ovary could be felt. I proposed abdominal section, to which she readily assented. On opening the abdomen the cyst was found to be monolocular, and to contain about two pints of dark yellow fluid. The pedicle was a broad one, and was secured in a Staffordshire knot. The right ovary was found diseased, and was also removed. Her recovery was easy and satisfactory. The highest temperature reached was 101° , which was evidently due to flatulent distension, as with the introduction of a hollow glass tube into the rectum and the escape of flatus the temperature fell.

In the interior of the cyst was a papillomatous projection covering an area the size of a half-crown piece. The cyst wall in places was very thin, and had its removal not been effected, rupture probably would have taken place before long, and fatal infection of the peritoneum would have ensued. Tapping would have brought on a similar fatal result. The patient is now entirely free from pain.

CASE IV.—*Cystic Degeneration of the Ovaries; Chronic Salpingitis.*

Mrs D., æt. 37, married seventeen years, has had five children, no miscarriages. The youngest child is 9 years old. Ever since the birth of her last child the patient has suffered from severe pain in her right side. For a year she has also had acute pain in her left side, during which time she has been undergoing palliative treatment without any result. She expressed herself as being tired of life, and was only too pleased to run the risk of an operation for the chance of getting the pain removed. The right ovary was felt to be prolapsed. The left was in natural position, fixed, and very tender. On 12th December 1886 I removed the appendages, and had little difficulty in the operation with the exception of some adhesions which fixed the left ovary.

The ovaries were studded with dilated follicles. The tubes were chronically thickened, and had their distal ends closed by inflammatory membranes. The following is a note made when the patient visited me two months ago, *i.e.*, sixteen months after the operation.

The patient has been quite free of pain since the operation, and has been able to perform her duties. Previous to the operation she thought that life was not worth living, she has now changed her opinion. She has not menstruated since the operation. Sexual desire has been absent since. All that remains of the abdominal wound is a scar, scarcely visible, one inch long. The uterus is in good position, the body is slightly drawn to the left side. The right broad ligament is shortened. On the left side the stump of the pedicle is easily felt, not at all tender.

CASE V.—*Cirrhosis of both Ovaries.*

Mrs T., æt. 32, a thin, frail, underfed, highly nervous woman, the mother of three children, the youngest of whom is 3 years old,

came to me in December 1886, complaining of pain in her back and sides, which had existed since the birth of her last child. She had inflammation after the birth of each of her last two children. For two years the pain has incapacitated her for work. Physical examination at this time was as follows:—

P.V.—The right ovary is not felt; there is some shortening of the right broad ligament. A tender cystic swelling is felt in the left retro-lateral pouch, probably an enlarged ovary. Per rectum an irregularly round shaped body is to be felt external to the right utero-sacral ligament. The enlarged ovary on the left is also felt.

On 1st Sept. 1887.—No ovary was to be felt on the right side. Per rectum a small tender body was felt in Douglas's pouch. I mention those examinations made at different times, as they have a bearing on some remarks which I will make further on with regard to changes in physical signs.

Being a widow with three children I hesitated in advising operation, and tried palliative treatment for one year, but as there was no improvement, and as she from her complaint was unable to earn a living, at her request I consented to operate. The operation took place in September 1887; the patient made a good though somewhat protracted recovery, and was dismissed on 20th October greatly improved in health, and free from her old pain. The ovaries were small and hard, while the tubes were thickened and congested, but not blocked up.

CASE VI.—Double Hydrosalpinx; Follicular Apoplexy of Right Ovary; Cystic Degeneration of Left Ovary.

Mrs D., æt. 33, has had seven children, the youngest of whom was born seven years ago. Patient's last labour was brought on by a fall, which rendered her unconscious. On recovering consciousness, she found that she had been delivered of a six months' child, which was stillborn. During the two years which followed her confinement the discharge at the periods was excessive; subsequently the discharge diminished in quantity, but the periods became painful. The pain at first was limited to the periods, and was felt chiefly in the right side, but during the last year it has been constant both in the back and sides, and has rendered her unable to work. For years she has had leucorrhœa.

Physical Examination.—Pain is complained of when the lower abdomen is pressed on. *P.V.*—Vaginal portion of cervix is greatly enlarged and indurated, is deeply split, the lips are everted, and there is a large abrasion on the posterior lip. The uterus is retroposed. The right ovary is felt in normal position slightly enlarged and cystic. The left ovary is in Douglas's pouch, is tender and apparently cystic.

Diagnosis.—Cystic degeneration of ovaries. Laparotomy was performed on 20th August 1887. Dr Haig Ferguson kindly administered ether. The abdominal wall was thick, fat, and

vascular. The right ovary was with some difficulty brought through the wound, and was followed by a large dilated tube. The pedicle was thick. The left Fallopian tube was similar to the right, but was more difficult to remove owing to adhesions and the deep position of the ovary.

The right ovary was slightly enlarged, and its interior on being cut into was found to be studded with cysts filled with a thick red granular substance. The distal end of the tube was firmly agglutinated to the surface of the ovary. From the surface of the left ovary a thin-walled monolocular cyst, the size of a walnut, protruded containing a clear watery fluid. The rest of the ovary presented a natural appearance. The left tube was fixed to the ovary in the same way as the right. The patient made an easy recovery. She is now in excellent health, and has been entirely free of pain ever since the operation.

CASE VII.—*Myoma of Right Ovary; Chronic Salpingitis.*

Mrs G., æt. 37, has had seven children and three miscarriages. The youngest child was born six years ago. The miscarriages took place previous to the birth of the last child. In 1885 the patient was in the Infirmary suffering from perimetritis, and ever since she has had continuous pain, particularly felt in the left side, but also present in the right side and back. The pain is always present except when patient is in bed. Menstruation has been very irregular.

Physical Examination, 3rd October 1887. — The uterus is slightly enlarged and only partially movable. On the right of the uterus, and close to it, a round very tender body, the size of a pigeon's egg, only slightly movable, is felt. On the left side high up a hard undefinable mass is indistinctly felt. Laparotomy was performed on 4th October 1887. The abdominal wall was very thick, the thickness being chiefly made up of fat. The muscles were very thin, and the peritoneal cavity was easily entered. The right ovary, considerably enlarged and of hard consistence, was felt deep down firmly adherent to the bottom of the right lateral uterine pouch, with the greatly thickened Fallopian tube curling over it. Owing to the deep position of the ovary and the thick abdominal walls the wound had to be enlarged in order to allow the fingers to reach the ovary, which was carefully gouged out by separating the adhesions with the forefinger. The ovary and outer half of the Fallopian tube were brought to the surface, tied in a Staffordshire knot and separated. A number of cut vessels as large as goose quills were seen in the cut surface of the pedicle, some of which were ligatured.

The left ovary was smaller than the right, was not so deeply placed, but was more firmly adherent, the adhesions binding it to the pelvic wall, the left lateral pouch, and the omentum. Both Fallopian tubes were very thick, fleshy, vascular, and friable, especially the left. The right ovary was enlarged and entirely

myomatous. The patient recovered well, and is now quite free from her old symptoms.

CASE VIII.—*Chronic Ovaritis; Posterior Fixation of Uterus; Pneumonia following Operation.*

Mrs M., æt. 33, married sixteen years, had three children, the youngest ten years ago. Her last labour was a very difficult one, and ever since she had had down-bearing pain in her back, and severe pain in both sides. She also complains of menorrhagia and painful micturition. She is very anæmic, and is quite unable to work.

Physical Examination.—The uterus is enlarged, deeply placed, and fixed. Nothing is felt in the right broad ligament. In the left an indistinct thickening is felt, causing pain when palpated. *Per rectum*, a round tender body, the size of a pigeon's egg, is felt high up to the left of the uterus.

Laparotomy was performed on 22nd October 1887. The left ovary was found to be enlarged, and lying in a bed of adhesions at the side and close to the uterus. The adhesions formed a roof across the upper part of the pelvis, and in their midst the ovary lay firmly imbedded. The shorter adhesions were broken up with the finger, so as to allow of the ovary being brought to the surface, when the longer adhesions were ligatured and divided. The right ovary and broad ligament were now searched for, but were nowhere to be found. The uterus was firmly adherent to the back wall of the pelvis by short, thick, very firm adhesions. These were partially separated by the finger in order to free the uterus, and also in the hope of finding the right ovary in their midst. In the latter respect, however, we were unsuccessful, and had unwillingly to stitch up the abdominal wound, with only one ovary removed.

The day after the operation the patient's pulse quickened; the night following she was restless, and frequently vomited. At 12.30 next day I saw her and found her pulse to be 124, temperature normal, respirations 40 per minute. On examining the abdomen it was found to be free from all tenderness, with the wound looking well. On auscultating the chest sonorous râles were heard at the end of inspiration, but no dulness was present. Poultices and the steam kettle were ordered, along with 10 minims of digitalis every four hours, and stimulants *ad libitum*. At 5.30 the symptoms had not improved; the temperature had risen to 102°·4; the pulse was 180; respiration 56. Dr James kindly saw her, but could find nothing in the chest to account for the symptoms.

The same symptoms continued, and two days afterwards distinct dulness was made out over the left base, while tubular breathing was heard. The cough was accompanied by rusty sputum. The rapid pulse continued, so strophanthus, 10 minims every four hours, was substituted for digitalis. This lowered the

pulse, and the patient gradually recovered. During this week, which was one of considerable anxiety, the patient took nourishment well, and had no abdominal symptoms. On questioning her, it was found that on the day preceding the operation she had a distinct rigor. On the day of the operation she was so nervous and excited that no special chest symptoms were noticed, but from her subsequent history it was evident that she had passed through a sharp attack of pneumonia. The extreme rapidity of pulse may also in some way be accounted for by shock.

The ovary removed was enlarged, hard in portions, cystic in others. There was a corpus luteus of menstruation present (menstruation began on the day of operation). The outer end of the Fallopian tube was glued to the upper surface of the ovary. The tube was greatly thickened. The patient's condition has not been improved by the operation; she has now as much pain as before, which is accounted for by the operation being an incomplete one.

CASE IX.—*Cystic Degeneration of both Ovaries; Cirrhosis of the Left.*

Mrs S., æt. 36; married seventeen years. Has had five children and two miscarriages. The youngest child is 6 years old. The last miscarriage took place four years ago. She has had very severe pain in her left side ever since her last miscarriage, and for the last two years she has been nearly bedridden. Last May she had typhoid fever. In the earlier part of her illness she had menorrhagia. Since her attack of typhoid the discharge has been less in amount. She is very emaciated, and is unable to walk.

Physical Examination, 18th October 1887.—The vaginal portion is enlarged and indurated. The body of the uterus is small and in good position. To the right of the uterus a round, elongated body can be felt running out to the side wall of the pelvis. On the left side a small round fluctuating swelling can be palpated. The examination is painful. The operation was performed on 22nd October 1887. On entering the peritoneal cavity a round cystic mass was felt lying to the right of the uterus. This mass was easily brought to the surface, but was found to be too large to pass through the abdominal wound, which accordingly had to be enlarged. While drawing through the mass a cyst the size of a walnut burst. The left ovary was felt to be enlarged and cystic, and lying in a mass of adhesions, on breaking up which, to free the ovary, the cyst burst. Owing to the adhesions shortening the broad ligament, the pedicle was ligatured with difficulty. The recovery was uneventful, and the patient now is free from pain, and her general health has greatly improved.

CASE X.—*Retroflexion of Uterus; Cystic Degeneration of Right Cirrhosis of Left Ovary; Chronic Salpingitis.*

Mrs R., æt. 35; married fourteen years; vi.-para. Youngest child was born three years ago. Complains of constant pain in the back, shooting down the legs, and of pain in both iliac regions.

When about 17 years of age her periods became painful, and have continued so ever since. She married at 21, and had dyspareunia until her first child was born. After her first confinement she says her womb came down, and since then she has complained of down-bearing pains. She always menstruated while nursing until pregnancy supervened. She is very anæmic and highly nervous.

Physical Examination.—Vagina short; vaginal portion natural. Body of uterus is felt through the posterior fornix occupying Douglas's pouch, and forming an acute angle with the cervix, is movable, not specially tender, and is slightly enlarged. The right ovary is easily felt lying behind the uterine body, and is very tender when touched. The left ovary is smaller, and not so deeply prolapsed.

The patient refused to leave the Home until operated on, so I had to consider what was best to be done. Although the uterus was easily replaced to its normal position, no form of pessary could be worn on account of the pain which its presence excited from pressure on the prolapsed ovaries. As the uterus was movable, shortening of the round ligaments was first thought of, but was abandoned for the reason that the condition of the ovaries was unknown as to whether they were diseased or not, and also whether or not they were adherent; though with regard to the latter point it might be inferred from the mobility of the uterus that the adhesions, if existent, would be slight. Accordingly it was determined to open the abdomen, and, if the appendages were found healthy, to perform hysteroraphy, and, if diseased, to remove them. On opening the abdomen, the body of the uterus was found to be slightly enlarged in a uniform manner, with its body occupying the pouch of Douglas, being acutely bent backwards on the cervix. The displacement was easily undone, there being no adhesions to prevent its replacement, while the portion where the bend occurred, viz., at the junction of body and cervix, was found to be very flexible. The left ovary was distinctly diseased, while the tube and broad ligament were greatly thickened and highly congested. Accordingly they were removed. The right ovary was small and entirely cystic, and the right tube and broad ligament were similar to the left. They were also removed and the wound closed. The uterus was not suspended.

It is now four months since the operation, and I examined the patient a few days ago, when the body of the uterus was felt through the anterior fornix in the position of ante flexion. She is now free from all pain.

The result of this operation is highly satisfactory, and shows that in some cases of retroflexion where the appendages are removed that it is unnecessary to suspend the uterus.

CASE XI.—*Defective Development of Uterus; Malformation of Appendages.*

Mrs H., æt. 26; married four years; has had no children.

Patient came to me in February 1887, complaining of pain in her left side, and of amenorrhœa. Her menstruation had always been irregular and painful, and the flow scanty. Two years ago the discharge gradually diminished in amount till it disappeared altogether. Since its disappearance the pain has been excessive and of constant duration, altogether unfitting her for any duties. She has had frequent bleedings from the nose and ears. The vaginal portion of the cervix is conical in shape, having a pinhole os; the body of the uterus is small and anteflexed. Ovaries are not felt.

I felt sure that the constant pain from which this patient suffered was not due to the uterus, but to some abnormal condition of the appendages, the nature of which could not be diagnosed. As the pain had always been in the ovarian region, and with the cessation of menstruation had become greatly aggravated, some developmental abnormality of ovaries or tubes was thought to be the cause. She was subjected to palliative treatment for a year, but without any success, and as the pain had rendered her bedridden, at her earnest request I operated.

When the abdominal cavity was entered and the pelvic contents carefully explored, a thick fleshy structure the size of the little finger was felt to leave the left ovary, which was in natural position, to be united in the middle line with a similar structure passing from the right ovary. They were joined together by a hard crustaceous material of about $\frac{1}{4}$ inch in length. On the right side, at a short distance from the juncture, another structure like a Fallopian tube passed downwards and backwards to the side wall of the pelvis, to which it was firmly attached. It had a free end resembling a Fallopian tube when cut across. These structures, along with the ovaries, were removed. The ovaries are of natural size, and contain in their interior some cysts containing a red granular substance. There are no corpora lutea. The tubes and broad ligaments are very much malformed, the nature of which I have not yet made out.

The patient recovered well. It is now three months since the operation, and during that time she has been entirely free from pain.

This case is instructive, inasmuch as it shows that in cases of defectively developed anteflexed uteri, when the symptoms are severe, we require to look beyond the uterus to the appendages for an explanation. As the defect is a congenital one, it is most probable that it is not limited to the uterus. When dysmenorrhœa and intermenstrual pain in such cases are excessive, and are not benefited by remedies, in future I will have no hesitation in advising the patient to submit to the removal of her appendages.

CASE XII.—*Cystic Degeneration of both Ovaries; Small Parovarian Cyst on Left Side.*

Mrs S., æt. 24; married four and a half years; has had two children, the youngest one year ago. The patient menstruated

first when 15 years old, and for two years was always sick and faint on those occasions. At 17, the dysmenorrhœa became so severe that she had to keep her bed during the whole of her periods. She married at 20, and became pregnant three months afterwards, and throughout her pregnancy the pain was continuous, and compelled her to keep in bed. During labour the pain in her left side was so severe that she did not feel the labour pains. A year and nine months intervened before she again became pregnant, when, as before, the pain made her bedridden, and relief was only obtained from morphia. When 19 years of age she developed a cough and had hæmoptysis, which has troubled her more or less ever since.

On physical examination the uterus was felt in good position, small, and freely movable. The right ovary was easily felt, somewhat prolapsed posteriorly. There was considerable thickening of the right broad ligament. The left ovary was not distinctly felt.

The patient was an exceedingly frail, delicate woman, with a tendency to phthisis, and with a very bad family history. Though not sterile, her general condition was such that pregnancy was not desirable; and as her pain made her a bedridden invalid, I thought it justifiable to advise removal of her appendages, which I knew were diseased and were the cause of her pain, so that she would have a chance of getting up her strength and be more able to combat her phthisical tendency. She herself was most anxious to have the operation performed. The appendages were accordingly removed two months ago. There were considerable adhesions in the right side. Both ovaries were cystic. The left one was exceedingly small, and in the left broad ligament there was a small parovarian cyst. The tubal fimbriated extremities were patent.

The patient made a good recovery, and is now free from pain, and her general health is much improved.

With the exception of Case VIII., which was an incomplete operation, the result of all these cases has been satisfactory. All have been relieved of the pain which rendered their lives wretched, and all have likewise greatly improved in general health. Sufficient time has not yet elapsed since the operations to allow me to speak of the remote effects, but I see no reason why their present condition should not continue. Older operators sometimes have had to record cases, which years after having been successfully operated on relapse into their former state of health, and suffer as much as previously, but these must be exceptional. The mortality of my cases has been *nil*. A low mortality is demanded in this operation, as it is one the object of which in most cases is to relieve pain, and to enable the sufferers to lead a useful life. In only two of my cases was the element of danger to life added to that of suffering. I refer to cases Nos. III. and VI. In the former a papillomatous cyst of the ovary was removed, the walls of which were very thin, and would probably soon have

ruptured, after which fatal infection of the peritoneum would have followed.

In Case No. VI., the tubes were distended with a clear fluid which at any time might have become purulent, and would have placed the patient in a dangerous position. It is unfortunate that often we are unable to diagnose the dangerous element beforehand, so that we could recognise the risks a patient is running, and urge immediate operation. But the signs and symptoms of the dangerous cases are often less marked than those that are less serious, and frequently it is only after the abdomen has been opened that such a perilous condition as pyosalpinx is discovered.

In Case No. VI., hydrosalpinx was not diagnosed because it was not felt. A dilated tube which is not tensely filled, or an ovary entirely cystic, may convey no sensation to the hand during abdomino-vaginal palpation any more than bowel, for the reason that there is no sense of resistance. Palpation may also reveal nothing when the ovary and tube are absent, or are imbedded in adhesions behind the uterus, in which case the uterus may be fixed as in Case No. VIII.

In Case No. IX., while removing the left ovary, which was cystically enlarged, the cyst burst, and the ovary presented the appearance of cirrhosis, being small and of hard consistence; and this suggests to us the question, whether or not some cirrhotic ovaries may not have been in the first place cystically enlarged, and that the cysts have ruptured, leaving the ovary small, hard, and cirrhotic.

Cystically degenerated ovaries contain very little ovarian tissue, and when the cyst contents are removed there is only the stroma, which is small in amount, left. The ovary under consideration might be called cirrhotic now that it is minus the cyst. Doubtless rupture of cysts frequently occurs in patients, and accounts for the changes in physical signs sometimes met with. In more than one case that I have had under observation, I have been surprised at the changes which take place in the physical conditions of disease of the appendages from time to time. In patients in whom I have distinctly felt cystic masses at one time, at subsequent examinations I have not been able to recognise these masses, and have been under the impression that my first diagnosis was erroneous. Occasionally we meet with cases where along with changes in physical signs the symptoms disappear, and if one cause of pain is tension, it is evident that rupture of cysts and relief of tension may bring about alleviation of symptoms. In one of my cases, No. V., the ovaries were felt enlarged—cystic at one examination, while at a later examination no enlargement, cystic or otherwise, could be felt. In her case, however, there was no improvement of symptoms.

In another case, No. X., one ovary was cirrhotic and the other

cystic, so that one ovary may have been more advanced in the diseased process than the other.

As preparatory treatment in those who are to undergo an operation, I always give remedies directed to improve the digestion, and make it a rule, unless the symptoms are urgent, never to operate until a patient's tongue is clean. As a result of this treatment, chloroform sickness after an operation is very rare. On the other hand, if chloroform is given to a patient with a dirty tongue, sickness in my experience is sure to follow. As one of the advantages claimed for ether is that it causes less sickness than chloroform, and as patient No VI. had suffered from dyspepsia for years, and had a large cracked thickly coated tongue, it appeared a good test case for ether; so the latter anæsthetic was given. The sickness following the operation was trifling. In no other way, however, do I think that ether is superior to chloroform, unless it be in patients who are very weak, and even in them, unless the operation is a long one, chloroform is quite as satisfactory as ether, because the former acts as a cardiac stimulant for a certain length of time. Should the operation be a prolonged one, ether should be given along with chloroform, simply for its stimulating effect.

It is interesting to note that none of the cases could be traced to have their origin in gonorrhœa, but, except in recent cases, it is frequently very difficult to obtain a history of gonorrhœal infection.

I feel under a deep debt of gratitude to Mr Caird, Drs Melville Dunlop, Hogarth Pringle, Haig Ferguson, and others, for the kind and able assistance which they have freely given me at these operations. To Mr Caird I am specially indebted for his valuable aid as chief assistant, the value of which no words of mine can fully express.

No.	Place of Operation.	Age.	Nature of Case.	Adhesions.	Date of Operation.	Result.
1	Patient's House.	26	Salpingitis. Prolapsed ovaries.	None.	Feb. 1886.	Greatly improved.
2	Patient's House.	30	Cystic degeneration of ovaries.	None.	June 1886.	Cured.
3	Patient's House.	31	Papillomatous cyst of ovary.	None.	Aug. 1886.	Cured.
4	9 Queensferry St.	37	Cystic degeneration of ovaries. Chronic salpingitis.	Pelvic.	Dec. 1886.	Cured.
5	St Kessog's Home.	32	Cirrhosis of ovaries.	None.	Sept. 1887.	Cured.
6	St Kessog's Home.	33	Double hydro-salpinx.	Pelvic.	Aug. 1887.	Cured.
7	St Kessog's Home.	37	Myoma of ovary. Chronic salpingitis.	Pelvic and omental.	Oct. 1887.	Cured.
8	St Kessog's Home.	33	Chronic ovaritis.	Entirely imbedded.	Oct. 1887.	No better.
9	St Kessog's Home.	36	Cystic degeneration and cirrhosis.	Left ovary imbedded.	Oct. 1887.	Cured.
10	St Kessog's Home.	35	Retroflexion. Cystic degeneration and cirrhosis. Salpingitis.	None.	Jan. 1888.	Cured.
11	St Kessog's Home.	26	Malformed Appendages.	Pelvic.	Feb. 1888.	Cured.
12	St Kessog's Home.	24	Cystic degeneration. Small parovarian cyst.	Pelvic and abdominal.	Mar. 1888.	Cured.

V.—CASE OF PERITONITIS FOLLOWING PERFORATION OF THE APPENDIX.

By DAVID STEELE MOON, L.R.C.P. & S. Edin., Surgeon Royal Infirmary, Dundee.

(Read before the Forfarshire Medical Association, 26th April 1888.)

ON the 12th of March I was called to attend A. P., tin-smith by trade, aged 63 years. He gave me the following history:—He had no illness since I operated on him for hæmorrhoids about fourteen years ago. For the last day or two he complained of colicky pains around the umbilicus and extending into the flanks. They were severe while they lasted, which, fortunately, was brief; were accompanied by a feeling of nausea, some tenesmus, suddenly stopped, and the relief was instant and complete for a time. He described the feeling as if wind were forcing its way down; something barred its progress; then this gave way, and relief was at once experienced, accompanied by a gurgling sound.

The pain being referred to the umbilicus, markedly intermittent, slight nausea, and some yellowness of the conjunctiva present, I presumed the case to be one of biliary colic, and prescribed morphia and belladonna in mixture, with poultices and light food. Two days after, the symptoms continuing much the same, castor oil and laudanum were given. This opened the bowels freely, and there was considerable relief of all the symptoms for two days following. When I saw him during the forenoon of the 17th, he said the pains were again more frequent, and he seemed more distressed; and about noon of that day the pain became agonizing, so that he sprang out of bed and held on to the mantel. The pain was accompanied by great tenesmus, and seemed to extend all over the abdomen. He had an opium pill every two hours till relief occurred, which it did about 5 o'clock in the afternoon. At night there was slight swelling of abdomen; he complained of thirst, and was freely perspiring; abdomen was tender.

During the next four days there was complete obstruction of the bowel, with gradual enlargement of the abdomen. Sickness not marked unless too much food or drink was taken at once. Slight tenderness over the whole abdomen, not confined to any region. Doubtful dulness on percussion in lumbar regions. Pain moderate, but now constant. While in this condition he was seen by Dr Miller, and he agreed that there was obstruction of the bowels, probably of a more or less chronic nature. *Treatment*—Liquid nourishment every half-hour; injections of warm olive oil, to be retained, if possible; and opium every three hours. I had previously examined the rectum, but found it empty, and passed the long tube about 18 inches. On withdrawal, the eye contained clay-coloured fæces.

He had a free movement of the bowels on the 21st; the fæces were light clay-coloured and offensive. The abdomen continued to enlarge. The bowels were fairly well opened. There was great

thirst, and if too much was taken, vomiting ensued. As the abdomen became distended, the breathing got very quick on the least movement. The mind became weak, and he wandered for a few days. Then the coma deepened, and in that state he died on the 29th, at least seventeen days from his seizure.

Assisted by Dr Stalker, I made a post-mortem examination of the body twenty-three hours after death. The abdomen was enormously distended. There was a depression over the epigastric region. This was caused, as was afterwards seen, by the distension of the colon above and the small intestine below. On incising there escaped a gush of rather fetid air. The intestines were much swollen. Great injection of the peritoneum, and masses of lymph lay upon and glued them together. We examined the sigmoid flexure first; found nothing abnormal, save the inflammation of its peritoneum; only, on lifting it up, we found greenish yellow pus welling up from the iliac fossa. The small intestine extended into the pelvis, and there were there found firm adhesions and pus. Examination of the ilio-cæcal region revealed the small intestine at its lowest part intensely injected, almost black. The appendix was adherent to the parietal peritoneum, and on moving, pus welled up very freely from behind the cæcum. The appendix was removed, and when examined was found about 2 inches long, with rather muscular walls, and dilated at its free extremity, where, on splitting it up, we found a small mass about the size of a flattened pea, soft, and evidently fæcal, surrounded by an ulcerated surface and scanty pus. Specimen shown.

On further examination of abdomen, we found pus in large quantity, but the curious thing about it was that it lay almost always behind the colon, so that there was very little found in the abdominal cavity in front of it: thus, we found large collections behind the cæcum, under the liver and spleen, and in the left iliac and pelvic spaces. The explanation of this, I think, is, that the colon became fixed by peritoneal adhesion before the pus had time to get into the general cavity in any large quantity.

The history of this case for consideration may be divided into three stages: (1) the period before the obstruction, (2) during the obstruction, and (3) after, when the bowels were fairly well moved.

During the first period a small mass of inspissated fæces escaped into the appendix, excited short peristaltic movements, some inflammation with its products, swelling and distension of appendix, and its adhesion to the parietal peritoneum. In the second period, the pus escaped in small quantity into the peritoneum, where it excited a severe attack of peritonitis; but it chiefly escaped into the subperitoneal tissues and fasciæ of the iliac fossa, and continued its course along the colon. The obstruction was no doubt caused by the shock of the peritonitis producing a paralysis of the intestine; and this was gradually overcome by the stimulating effects of the injections, and the nerves gradually regaining their lost power. In the third period there was a gradual

increase of the pus, with, I have no doubt, some decomposition, which rendered it more septic to the system. There was also increasing meteorism, which interfered with the movements of the heart and lungs, shown by breathlessness on the least exertion. The pulse fluctuated in strength from day to day, but rarely changed its rate of beat; its average throughout the illness would be about 80 per minute. Temperature throughout was little changed, usually about 99°.

As to the diagnosis. I thought at first it was a case of biliary colic, and later on, obstruction pretty low down, probably in the sigmoid flexure, and not of a very acute nature.

In a very valuable paper on "Inflammation of the Vermiform Appendix," by Professor Fitz of Harvard University, published in the October number of the *International Journal of the Medical Sciences* for 1886, this disease is discussed with great fulness, from which I will briefly quote.

Cause.—He found in 321 cases impacted fæces or fæcal concretions present in one-half the cases; other foreign bodies, as seeds, etc., in one-eighth. In short, foreign bodies were present in three-fifths of all the cases, and probably the average is much higher, as they would be apt to be overlooked in the pus, etc. He ascribes this as due to some acquired or congenital deformity of the appendix.

Pains.—He says sudden, severe abdominal pain is the most constant first decided symptom of perforating inflammation of the appendix. It occurs in 84 per cent.; is usually intense, rarely slight, and occasionally accompanied by a chill or nausea and vomiting. Is referred to the right iliac fossa in 48 per cent. Is probably caused by the separation of fresh adhesions of an active peritonitis involving the appendix. It occurred in 67 per cent. on the first day.

Temperature.—A slight rise of temperature was noted most. Commonly on the 2nd day this symptom is not so constant. Presence of tumour in the right iliac region detected by modified resonance on percussion, resistance on palpation, and a sense of fluctuation. Presence of pus may be expected on the 3rd day.

Terminations.—The tumour may resolve, but its great tendency is to burst, which it does externally, or most commonly into the peritoneum, producing death by shock within two days, or a secondary general peritonitis, revealed by its usual symptoms, most distinctly noted on the 2nd, 3rd, and 4th days.

The following diseases have been mistaken for acute inflammation of the appendix,—typhlitis in its strict sense; intestinal obstruction from intussusception or strangulation; pelvic peritonitis (hæmatocele) of vesical, ovarian, tubal, or uterine origin; psoriasis, and renal and biliary colic. We may dismiss the others and examine the symptoms of biliary colic, and see how far they correspond with those in our case and those relating to intestinal obstruction. Fitz says biliary colic is rarely likely to suggest an inflamed appendix, and states that the seat and nature of pain, the absence of fever and peritonitis during the first week, and the

possible occurrence of jaundice, would indicate the former, but in our case all these symptoms were present, and yet we had to do with an inflamed appendix. In the differential diagnosis of intestinal obstruction and perforative peritonitis there is a close resemblance. Treves, in his exhaustive work, states:—"In both, the symptoms develop suddenly in apparent health, or after vague abdominal symptoms; the pain is sudden and severe, and in both there is constipation, vomiting, and great prostration, but there may be noticed certain differences. Thus in perforation there is a history of trouble about the cæcum, with vomiting and rise of temperature. At the onset of the peritonitis there is usually a marked rise of temperature; in acute obstruction the temperature is low. The pain in peritonitis is severe, and attended by extreme tenderness; is at first local, then spreads; in obstruction the pain is severe, but is not increased by pressure, and is often relieved thereby. Constipation and retention of flatus is not so complete in peritonitis as in obstruction; nor is the vomiting so early or severe, and does not become fæculent so soon. The abdominal parietes, according to Treves, are tense and hard from the first in diffused peritonitis; in obstruction they are at first flaccid, and only become tense when peritonitis sets in. Fitz, however, states that the abdomen is distended, and tympanitic at the outset, and is unusually sensitive.

In my case there were no symptoms referred to the cæcal region; there was little rise in the temperature; the pain was only excessive at the very onset of the peritonitis; there was not any great tenderness, and if any, it was not localized. Constipation was absolute for four days, but there was some flatus passed on the third day. The abdomen became gradually distended.

Treatment.—If the perforation is recognised, then the proper course would be, at as early a date as possible, to cut down upon the cæcum and remove the appendix with the effused matters, which has been successfully done repeatedly; while in some other cases the result has not been so successful, and I think you will agree with me that in the absence of definite symptoms in this case I was justified in not performing laparotomy.

VI.—SOME SCARLATINIFORM RASHES OCCURRING DURING THE PUERPERIUM.

By G. OWEN C. MACKNESS, B.A. (Oxon), M.B. C.M., Late Resident Physician
Royal Maternity Hospital.

(Read before the Edinburgh Obstetrical Society, 14th December 1887.)

It is not my intention to discuss generally the subject of scarlatiniform rashes during the puerperium, but merely to communicate a series of five cases which occurred at our Maternity Hospital during the quarter ending October 31st, 1887, and to try

to suggest some possible explanation of their occurrence. These cases all showed certain similar symptoms, and conformed to a definite type. As far as I have been able to discover, no similar cases have hitherto been recorded ; for although Guéniot notes and describes certain puerperal scarlatiniform rashes, yet his cases differ from these in certain material points, as I shall presently show.

The following are the clinical records of the cases :—

CASE I.—Isabella A., æt. 19, i.-para ; confined on August 14th, 1887, of a healthy male child ; low forceps applied.

		Temperature.		Pulse.		
Rash.	Aug. 14	1	99·2 99·6	75 77		
	„ 15	2	98·4 99·8	76 79		Lochia moderate.
	„ 16	3	98·6 101	84 120		
	„ 17	4	98·8 100·2	87 96		Rash appeared on face.
	„ 18	5	98·6 100·4	89 98		Rash all over body.
	„ 19	6	99·2 99·8	96 98		Rash more marked. Lochia scanty.
	„ 20	7	99·4	89		

17th August.—Rash appeared on face, eyelids swollen.

18th.—Rash all over body. Urine contained no albumen. No headache or sore throat.

20th.—On Dr Wood’s recommendation she was sent to the Observation Ward of the City Fever Hospital. She was kept there for a week and then dismissed, as no symptoms of scarlet fever developed themselves.

CASE II.—Martha L., æt. 21, ii.-para ; confined on August 17th, 1887, of a healthy male child. The placenta was partly adherent, and had to be removed with the hand.

		Temperature.		Pulse.		
Rash.	Aug. 17	1	101·2	96		
	„ 18	2	97·6 99·8	87 89		Lochia profuse ; some clots.
	„ 19	3	98·4 100·6	104 96		Lochia slightly offensive.
	„ 20	4	98·6 100·8	100 106		Lochia very scanty ; rash appeared ; uterus washed out.
	„ 21	5	99·4 99·8	100 98		
	„ 22	6	99·8 100·4	94 90		Rash less distinct.
	„ 23	7	99·4 101·6	102 101		Lochia scanty ; still slightly offensive.
	„ 24	8	98·8 100	92 86		Suffering from severe headache.
	„ 25	9	98·4 99·2	85 89		Rash almost gone.
	„ 26	10	97·8 98·8	82 79		Lochia stopped.

20th August.—Rash appeared over whole body but not over face. No sore throat or headache. Tongue normal.

22nd.—Red blush much less distinct ; no albumen in urine.

CASE III.—Christina B., æt. 25, ii.-para; confined on August 21st, 1887, of a healthy female child. An old tear in the perineum extended farther back during delivery.

		Temperature.		Pulse.		
Rash.	Aug. 21	1	99·6	99	99	
	„ 22	2	97 98·2	74	80	
	„ 23	3	98·4 99·6	98	97	Lochia moderate.
	„ 24	4	98·2 99·6	101	106	Lochia slightly offensive; rash appeared.
	„ 25	5	99·2 99·2	100	91	Lochia scanty and offensive; uterus washed out.
	„ 26	6	97·8 100·2	88	94	
	„ 27	7	98·4 99·2	84	78	
	„ 28	8	99 98·4	79	74	Lochia not offensive.
	„ 29	9	99 98·2	77	62	Rash disappeared.
	„ 30	10	99 99	72	63	Lochia stopped.

24th August.—Well-marked rash all over body; face red and eyelids swollen. No albumen in urine.

25th, 11 A.M.—Rash scarcely over face, more marked on arms; moderately marked over trunk and lower extremities. 8 P.M.—Rash less marked.

26th.—Rash very marked over abdomen. A number of small vesicles present for an area of about 1" round umbilicus, also extending in a line on the right side outwards; no pain or itching; varying from size of pin's head to split-pea.

28th.—Rash only present under binder; vesicles rather less in extent.

29th.—No rash visible. All the vesicles are flatter, and some are dried up.

CASE IV.—Mrs. C., æt. 22, iii.-para; confined on September 4th of a healthy male child. Labour normal.

		Temperature.		Pulse.		
Rash.	Sept. 4	1	99·2	78	78	
	„ 5	2	97·8 98	70	70	Lochia profuse, with small clots.
	„ 6	3	98·4 98·2	88	74	Lochia moderate.
	„ 7	4	98·2 98·2	82	70	Lochia slightly offensive.
	„ 8	5	98·4 98·6	80	74	
	„ 9	6	98·6 101·6	78	100	
	„ 10	7	102·2 101·6	102	100	Lochia slightly offensive and scanty.
	„ 11	8	99·8 98·8	96	80	
	„ 12	9	98·2 98·4	74	76	Rash over face and chest.
	„ 13	10	98·2 101·8	74	84	Rash gone.
„	14	11	99·2 98·8	89	86	

This case differs from all the others in that although the discharge was slightly offensive on the fourth day, yet no rash

appeared until the 12th day after delivery ; the other symptoms pointing to the fact that there was some poison in the body, viz., the rise of temperature and pulse-rate, appeared before this.

CASE V.—Jane S., æt. 16, i.-para ; confined on 20th September of a healthy female child ; labour normal.

		Temperature.		Pulse.	
Rash.	Sept. 20	1	99·4	70	
	„ 21	2	98·6 98·8	76 78	Lochia profuse, with clots.
	„ 22	3	98·8 99	80 80	
	„ 23	4	98 98	82 98	Lochia slightly offensive; rash appeared.
	„ 24	5	98·6 98·8	88 80	
	„ 25	6	98·4 98·8	84 72	
	„ 26	7	98·4 99·2	84 92	Lochia almost sweet; rash gone.
	„ 27	8	98·4	84	

23rd September.—Rash appeared over trunk and legs, especially marked under binder, slightly over chest, none on face or arms ; no albumen in urine.

24th.—Rash nearly gone, only present under binder and over thighs.

In these cases a rash appeared, attended by no bad results to the patients, and although the lochia in most of them were offensive, attended by a rise in the temperature and pulse-rate, yet these conditions disappeared in a few days, and in most cases without any treatment whatever. These rashes, then, seem to have no clinical significance as far as the patient's immediate well-being is concerned ; yet they are of some importance in that they may easily be mistaken for cases of mild scarlatina where the sore throat and other ordinary symptoms are not developed, the only manifestation being the rash. This was actually the case with the first of these patients, who was carefully isolated as soon as the eruption appeared, and then sent to the Observation Ward of the Fever Hospital on the advice of one of the physicians of that institution, who was called in to see her.

As far as I have been able to discover, the only mention made of these rashes in English is by Dr Angus Macdonald¹ in his report of our Maternity Hospital for the quarter ending April 30th, 1885. He writes as follows : “A diffuse *erythematous eruption* occurred during the puerperium in two patients. They suffered no ill effects, and the rash disappeared in a few days. No satisfactory cause could be ascertained.” Charpentier² writes thus : “Under the influence of the abundant perspirations that women experience it is not uncommon to see *scarlatiniform eruptions* developed, to which Guéniot has called attention, and it is

¹ *Edin. Obstet. Trans.*, vol. x. p. 232.

² *Traité pratique des accouchements*, vol. i. p. 552.

necessary to take great care not to confuse these with scarlatina. It is sufficient to powder the patients with "*poudre d'amidon*" to bring about a notable relief in the itching." Here itching seems to be the prominent symptom, a condition which was never present in the above cases, showing that they were probably of a different nature. I have, unfortunately, not been able to obtain access to Guéniot's thesis on this subject, which was published in 1862, but in 1870 the Medical Society of the Paris Hospitals discussed this question, and Dr Besnier then said: "The subject has been carefully investigated by M. Guéniot in his inaugural thesis, a very remarkable work, in which the author discusses with the greatest ability the nature of scarlatina in lying-in women. Preserving the most laudable reserve in his conclusions, M. Guéniot does not give an absolute opinion on what he proposes to call *la scarlatinoïde* of lying-in women. He thinks that it constitutes a special form of disease, but leaves to further observation the burden of deciding if *la scarlatine* and *la scarlatinoïde* are absolutely distinct, or if one is to the other what *la varioloïde* is to *la variole*." From this abstract, which is all that I have been able to obtain, it is impossible to say whether his cases were similar to those recorded above; probably, however, they were not so. Evidently, then, there are various other forms of scarlatiniform eruptions which appear during the puerperium besides those which occurred with us this year. The belladonna rash, of course, comes in a totally different category, being caused by the use of a drug, and is not to be considered with these.

For some reason or other the rash in Case IV. did not appear until the twelfth day, although there was a rise in temperature and pulse-rate before then, while the lochia were also offensive. I have therefore excluded this case as an aberrant one, and taking the average daily temperature and pulse-rate in the other four cases, have constructed a Table which may be looked upon as showing the typical range of temperature and pulse-rate in this condition. For comparison sake, there is placed beside it a Table showing the average temperature curve during the puerperium, taken from Parvin's work on Obstetrics. This latter chart, however, shows a higher range of temperature than is seen in a normal case in our Maternity Hospital, where it has long been observed that the temperatures are usually below the average. This, however, only emphasizes the fact, that when these rashes occur the temperature is slightly above the average throughout, commencing on the third day after delivery, while in some individual cases it went up as high as 100°·8 F. to 101°·6 F. Parvin states that the average normal pulse-rate during the puerperium is between 50 and 60, while it is usually lowest from the fifth to the seventh day. On looking at the Table when these rashes are present, it is seen that the pulse-rate is enormously increased, going up even to 102 on the evening of the fourth day.

	Average Temperature, with Rash.		Average Pulse-rate, with Rash.		Parvin, Normal Temperature.	
2nd day.	97·9	99·2	78	82	98·4	98·8
3rd "	98·6	100·1	92	98	98·2	98·8
4th "	98·4	99·7	93	102	98·2	98·4
5th "	99	99·6	94	92	98·2	98·8
6th "	98·8	99·8	91	89	98·4	98·6
7th "	98·9	100·4	90	90	98	98·4
8th "	98·6	99·6	85	80	98·2	98·4
9th "	98·7	98·8	81	76		
10th "	98·4	98·5	77	71		

The character of the rash was in all cases the same. It consisted at first of a number of minute red points or papules, which appeared at the hair follicles, and then between these there appeared a red blush. The redness disappeared on pressure. After lasting for some days the red blush began to fade away, leaving only the red points, which eventually disappeared also. It appeared promiscuously over the body, but least often over the face. It was most marked and persisted longest over the abdomen, which was covered by the binder. In Case III. there were in addition a number of small vesicles round the umbilicus, herpetic in appearance, but accompanied by no pain or itching. These gradually dried up and disappeared. The rash was never accompanied by any pain or itching. No sore throat, headache, or foul tongue were present. There was no albumen in the urine in any of the cases.

The patients were getting the ordinary Hospital diet; they were douched twice daily with 1-5000 corrosive sublimate solution; they were taking no drugs, except that on the third day after delivery they had a dose of Henry's solution, which was repeated when necessary. No belladonna was being used by them. In two cases the uterus was washed out, but in the others no treatment was adopted beyond keeping the bowels open. In all the cases, except the fourth, the rash appeared on the fourth day after delivery. Three cases occurred in one week, while all occurred within a period of five weeks.

I would suggest the following as a possible explanation of the condition:—Some blood-clot is retained *in utero*, as is shown by the fact that in three of the cases the lochia are described as "profuse, with clots," while the fourth case is that of a multipara, in whom this condition would be very likely to occur. This blood-clot then undergoes a process of fermentation or decomposition, as evidenced by the offensive smell of the lochia. Some of the products of fermentation are absorbed into the system, and indicate their presence by the rise in temperature and pulse-rate, which are always found. These irritating products, which are circulating in the blood, are then excreted by the sweat-glands of the skin among

other channels, and by their irritating action give rise to this rash. This is shown by the facts, that the rash is only found so long as there is evidence of the presence of these waste products, and that it appears first as punctate spots at these glands, and persists longest where sweat secretion is most active, viz., under the binder, which keeps the skin warm and moist.

The fermentation or decomposition does not seem to have been ordinary septic decomposition, in that the lochia soon became sweet again without any treatment, and no bad effects followed in any of the cases. Moreover, the rashes appeared as an epidemic, and then were never seen again, looking rather as if they were due to some special cause which was propagated from one case to the others. None of the patients showed any signs of syphilis.

If the rash is due to excretion of irritating products by the skin, one would rather have expected that albuminuria would have been present from their action on the kidneys. No albumen was ever found, however, in the urine. One or two other cases occurred where the discharge became slightly offensive, but where no rash appeared.

VII.—A SUCCESSFUL CASE OF CÆSAREAN SECTION.

By Surgeon-Major ARNOTT, M.D., Professor of Midwifery, Grant Medical College, Bombay.

(Read before the Obstetrical Society of Edinburgh, 13th June 1888.)

GENTLEMEN,—Some time ago I submitted for your consideration notes of a case of Cæsarean section in which death occurred in a sudden and unexpected manner more than a week after the operation, and which I claimed as a successful case, because the woman was carried safely through the risks of hæmorrhage and shock, did not suffer from any symptoms whatever indicating peritoneal mischief, and the wound had quite healed.

I now place before you a record of another case in which the woman recovered and is now alive, but she was for a long time detained in hospital on account of suppuration along the suture tracts in the subcutaneous tissue of the abdominal wall.

A. N., æt. 21 years, ii.-para, a Mohammedan (Blora) residing in the Blondi Bazaar, was admitted at 6.30 P.M. on May 10th, 1887. Labour pains had commenced at 8 A.M., and the membranes ruptured at 8 P.M. on May 9th, and she had been under the treatment of native midwives till admission. Her previous gestation terminated prematurely at the 7th or 8th month, and the child did not survive.

On examination the fœtus was found to be alive, and the heart sounds heard most distinctly a little below and to the left of the umbilicus. The uterine tumour was abnormally prominent and

hard. External pudenda normal, vagina moist, cervix dilated, head presenting in the first position, pelvis much distorted, the true conjugate measuring about $1\frac{3}{4}$ inch, or less. Between ant.-sup. spines, $9\frac{1}{2}$ inches; external conjugate, 5 inches; transverse of outlet, $3\frac{1}{2}$ inches; diagonal conjugate, about 2 inches, or a shade less; sacro-cotyloid, about 1 inch. General condition of the patient fairly good; temp., 101° F; pulse, 104; mind cheerful; tongue clean and moist.

As the deformity, though great at the brim, affected the cavity and outlet of the pelvis to a very slight degree, I determined to attempt delivery by craniotomy and the other usual concomitants of that operation, though the extreme contraction of the brim prevented my being sanguine of success. Accordingly, though not without some difficulty, I perforated the skull, and removed the brain by a douche, then removed one parietal bone and portions of the other bones of the vault of the cranium, converted the case into a base presentation, and endeavoured, by successively seizing the base of the skull by the cranioclast, blunt hook, and guarded crochet, to pull it past the brim. But after a prolonged and patient trial I failed; and as the woman showed signs of exhaustion, pulse much accelerated and temperature rising, I desisted, and determined to perform Cæsarean section, which operation was begun shortly after midnight. The abdomen was thoroughly washed by an antiseptic lotion, with which also the vagina was well douched, and the patient put under chloroform. The peritoneum was opened in the usual way, and the incision made rather large, so as to admit of the uterus being brought out of the abdominal cavity, while the intestines and peritoneum were carefully protected by flat sponges, and the wound kept cleared as much as possible. I marked, by a slight transverse nick, what should be the extreme limits of the incision into the uterus. I then, midway between these points and in the middle line, cut rapidly into the uterine cavity, and enlarged the opening upwards and downwards by a pair of strong scissors, my assistant meantime doing his best to prevent hæmorrhage by compressing the edges of the uterine wound between the fingers and thumbs of both hands. The child was then seized, and withdrawn with some little difficulty, owing to its head being held by the cervix. The placenta and membranes were then removed, and the cavity of the uterus thoroughly cleansed by sponges soaked in carbolyzed lotion, and finally some iodoform placed in the uterine cavity.

The uterine wound was then most carefully closed by many deep and superficial sutures, the peritoneum cleaned, and the abdominal wound closed by superficial and deep silk sutures, and dressed with iodoform, covered by oakum, and secured by a bandage. A subcutaneous injection of sclerotinic acid was then given and the following prescribed:—

R Liq. sodæ chlorin., . . . 3ss.
 Aquæ, . . . 3ij.
 Make a draught.

Every 4th hour.

R Quiniæ sulph., . . . grs. 2.
 Opii, . . . gr. $\frac{1}{2}$.
 Ext. gentian, q.s.
 Make a pill.

Every 4th hour.

R Ext. ergot liquid, . . . 5j.
 Aq. cinnamon, . . . 3ij.
 Make a draught.

Morning and evening.

Diet—barley water, milk, congie, ice.

May 11th, 8 A.M.—Pulse, 160, weak; respirations, 28; temp., 103°; tongue moist and clean; no marked tympanitis or tenderness; mental condition good. Continue treatment, and also give 5 grs. of quinine now and at 11 A.M.

1.30 P.M.—Condition less favourable; pulse exceedingly rapid; face anxious; much tenderness in hypogastrium; copious lochial discharge, just like the discharge from a stump; much thirst; temp., 103°·2 F.; respirations, 40; pulse, 160. Treatment continued.

12th, 9 A.M.—Temp., 102°·8 F.; pulse, 130; respirations, 36. The patient answers questions rationally; abdomen is tympanitic and tender; she has slight hiccough. On the whole seems a shade better this morning. Tongue clean and moist; bowels not moved; urine has been regularly drawn off by a catheter. Treatment continued.

6 P.M.—In much the same state.

13th, 8 A.M.—Temp., 102°·8; pulse, 126; respirations, 30. Seems a shade better this morning, or at all events no worse. Pulse and respirations both rather less frequent; expression placid; tongue clean and moist; bowels not moved; urine drawn off regularly; sleeps occasionally. Bandage removed; womb found displaced to the right and under; tympanitis less; no vomiting; no hiccough to-day. Treatment continued.

4.30 P.M.—Temp., 102°·8 F.; pulse, 120; respirations, 40; breasts full; takes her food well. Treatment continued. Also applied belladonna plaster to breasts.

10.30 P.M.—R Potass. nit., . . . grs. 10.
 Tinct. opii, . . . ℥ 20.
 Spt. ether nitros., . . . ℥ 20.
 Lq. menth. pip., . . . 3j.
 Aq. ad., . . . 3ij.

14th.—Temp., 103°·4; pulse, 120; respirations, 36. Temperature

is higher, but pulse is not quicker or weaker; tongue is clean and moist; belly rather more tympanitic, but not more tender; expression cheerful, and she looks no worse. Treatment continued. Also castor oil, \mathfrak{zss} .; intrauterine douche of liq. sodæ chlorinæ, 1-10.

4 P.M.—In much the same state. Bowels moved.

15th, 9.30 A.M.—Temp., $102^{\circ}8$ F.; pulse, 114; respirations easy, 38. Looks rather better; tongue clean and moist; pulse of good volume; lochia not offensive; belly soft and not at all tympanitic; wound dry; uterus displaced to right, and some tenderness in hypogastrium and iliac region. Continued treatment (including douche). Enema of warm water.

4.30 P.M.—In the same state.

16th.—Looks better this morning; is quite cheerful; tongue clean and moist; temp., $102^{\circ}2$; pulse, 112, of good volume; does not complain much of pain; belly soft and relaxed, and no tympanitis; wound appears healthy. Continued treatment.

17th.—In much the same state. There is some inflammation and suppuration along the suture tracts. Two sutures removed.

18th.—Better; pulse slowly falling; temp. keeps well; tongue clean and moist; urine rather hot; no peritoneal pain, but some of the sutures have caused suppuration, and this is probably the cause of fever. Sutures removed.

Uterus washed out with liq. sod. chlor. sol.

R	Potass. nitrat,	.	.	grs. 5.
	Spt. ether nit.,	.	.	\mathfrak{M} 20.
	Decoct. cinchonæ,	.	.	\mathfrak{zj} .

Every 4 hours.

19th.—Temp., $101^{\circ}3$; pulse, 112 to 118; looks well; is quite cheerful; complains of a pain in the right side, but it appears to be superficial; wound looks better, but there is induration along both sides of the incision; lochia scanty, not offensive, yellowish. Treatment continued.

26th.—Temp., 102° ; pulse, 130; respirations, 32; not so well; pulse and temperature abnormal, but she *looks* well; tongue clean; expression cheerful; appetite good. Wound has healed except one point about size of a millet seed, on which there is a white deposit as if due to subjacent irritation; there is some suppuration in the abdominal wall, which escapes by three suture sinuses; below the cicatrix there is brawny induration, and this is, I suppose, the cause of the fever.

The rest of the case is simply a record of the treatment of some suppuration in the abdominal wall, which left a very obstinate sinus.

The patient was ultimately discharged on 31st July 1887 in good condition, but with still a small sinus at the upper end of the cicatrix. *Per vaginam* the uterus was displaced upwards, and

is, I think, adherent to the parietal peritoneum at the seat of incision.

I do not think I have anything to add to the few remarks appended to the cases I formerly had the privilege of submitting to the Society. The point on which I am most anxious to elicit the opinion of the Society is this—What is the best operation when delivery cannot be accomplished per vaginam? Should it be such an operation as the one I now record, or something like Porro's operation, or the American extra-peritoneal operation? Cases of extreme deformity are not sufficiently frequent to enable one operator to make a comparative trial of these three operations, and it is probably desirable for one individual to adhere to one method and thus gradually accumulate material for comparison. For instance, it would be useless for me to do a Cæsarean section this year, a Porro next year, and a laparo-elytrotomy the following year.

At present my opinion is against Porro's operation, because it seems to me a much more formidable operation than Cæsarean section.

The operation now submitted for your kind consideration was performed with rather a bad light, and with assistants untrained in abdominal surgery. But I must express my cordial thanks to Mr Gallacher, the house-surgeon, for his steady and efficient assistance.

VIII. — ELONGATIO COLLI SUPRA VAGINALIS — AN UNUSUAL CONDITION IN THE EARLY MONTHS OF PREGNANCY.

By CALVIN THAYER ADAMS, M.D., Ex-House-Surgeon of the New York Hospital.

SINCE reading the article of Dr Montagu Hanfield Jones in your March number on "An Unusual Condition of the Uterus in the Early Months of Pregnancy," a case of supravaginal elongation of the cervix has occurred in my private practice, which I wish to record. Attention has been called to this condition by Huguier, Martin, Hegar, Scanzoni, Gallard, Mouat, Depaul, Fritsche, Verneuil, Campana, Loghiades, Klot, Pozzi, Crevet, Creuveilhier, Guérin, Maissoneuve, Péan, Schroeder, and others.

This condition (observed most frequently in multiparæ) consists usually in an hypertrophy of all the tissues of the cervix, muscles, glands, and connective tissue. It occurs congenitally and as a result of endometritis, prolapse, new growths on the portio, ante- or retro-flexions, retro-position, and with perimetritic bands and exudation; also after prolonged labour, and from leaving the bed too soon after labour. With this condition occur dysmenorrhœa, conical cervix, sterility, irregular menstruation, generally scanty,

sometimes menorrhagia. Amenorrhœa sometimes lasts for years. In 46 cases observed by Van Rabenau, when assistant to Dr Martin in Berlin, 43 had ante-flexion and 3 retro-flexion. The column measured from 3 to 4 centimetres in length; the corpus 2-3½ centimetres.

The first to point out this condition in pregnancy was Dr A. Martin, in a paper presented to the *Berliner Gesellschaft für Geburtshülfe und Gynækologie* in 1880. He related seven cases in which the chief interest was that in consequence of the elongated column the corpus formed apparently a distinct tumour, leading to errors of diagnosis as well of the pregnancy as of that tumour.

In these cases many of the early signs of pregnancy are absent; but one sign to which Hegar called attention in 1882 is invariably present—that is, the early softening of the lower portion of the body of the uterus where the column joins it, and this is probably the chief source of the errors of diagnosis which are so frequent. The pliable lower segment allows the rest of the corpus to be moved quite freely independently of the long column, so that the usually anteflexed column is taken for the uterus, and the corpus for a solid tumour. The softened portion of the corpus is very compressible, and feels like a pedicle to which the rest of the corpus is attached.

Hegar, speaking of ordinary pregnancy, says that with the thumb in the vagina and one finger in the rectum above the third sphincter, and the other hand on the abdomen, this softened portion often feels as thin as cardboard. The four cases published by Dr Jones are all multiparæ, as are the seven cases presented by Dr A. Martin.

I will mention the case of Mrs R., æt. 22, married one year; menstruation always irregular, from one to three months elapsing between the periods; slight dysmenorrhœa. Five months ago patient had an unusually painful period, confining her to bed for four days; flow scanty. Three and a half months ago again confined to bed, with pelvic pains and vomiting of all nutriment. Bimanual palpation revealed what appeared to be a small, hard, sharply anteflexed uterus, and in front of the fundus, between the vagina and bladder, a mass having the size of a cricket ball and the consistency of a myoma. The mass could not be moved independently of the uterus, but a distinct depression could be felt between them. Patient confined to bed for two weeks; lost considerable flesh and strength; morning vomiting continued for a month. For the last few days patient complains of frequent micturition and irregular, sharp pelvic pains. Having again occasion to examine her under chloroform in company with Dr Martin, the supravaginal column is found to be much elongated, and beyond a softened portion is felt the body of the uterus, lying to the right of the median line, soft and corresponding about to the fourth month of pregnancy. Vulva, cervix, and

breasts correspond. This condition can be confounded with extra-uterine pregnancy, especially tubal; and in a doubtful case anæsthesia cannot be too strongly urged when through the rectum and bimanual palpation a certain diagnosis can be made.

I have to thank Dr Martin of this city for many of the authorities mentioned.

IX.—NOTES OF A YEAR'S WORK IN ABDOMINAL SURGERY, WITH TWO CASES OF SUPRAPUBIC LITHOTOMY.

By RUTHERFORD MORISON, M.D., F.R.C.S.Ed., late Visiting Medical Officer,
Hartlepool Hospital, Newcastle-on-Tyne.

(Continued from page 47.)

CASE V.—*Extrauterine Pregnancy; Abdominal Section; Removal of Fœtus; Recovery.*

Mrs J., æt. 28, mother of five children, oldest 12, youngest 3, was first seen by me on 6th December 1887.

History.—Two years ago she had an attack of inflammation in the lower part of the bowels, which her medical adviser said was brought on by cold caught during a menstrual period. This illness confined her to bed for nearly three months. From that time up to two months ago she had been well. She then menstruated normally, but her next period was missed, and she has not felt right since.

6th December.—She complained of periodic attacks of pain in the lower part of the bowels, so severe as to oblige her to lie on the sofa or remain in bed.

13th December.—She had considerable hæmorrhagic discharge from the vagina, and this, together with the severe periodic pain and the probability of pregnancy, made me suspect that she was going to abort. She objected to a vaginal examination, so that it was not possible to form an accurate opinion. Discharge continued more or less every day; the pains got worse; her general health began to fail from sickness, loss of appetite, and pain. It was not, however, till 24th December that she would allow any examination to be made; and then, though I found something was wrong, and had a suspicion what it might be, I could form no definite opinion because of her struggles and complaints.

On 28th December, with the consent and assistance of her friends, I succeeded in getting her to take chloroform, and found, on making an examination P.V., that the uterus was enlarged, and cervix soft, feeling like a pregnant one. Behind the uterus was a tumour, which I had previously discovered to be very tender on pressure. The tumour was rounded and elastic, feeling as if it contained fluid. In front of it lay the uterus, the outlines of which could be mapped out, distinct from, but closely connected with the swelling, which reached midway between the umbilicus and pubis.

The breasts contained colostrum, and there was a well-marked areola round the nipple. After the chloroform she was very ill with pain in the præcordial region and shortness of breath. Nothing could be found to account for this, but she said she was dying. For the last week her temperature had been variable—about 100° in the morning, 101° at night.

29th December.—Dr Murphy, of Sunderland, saw her with me in consultation. He made a further examination under chloroform, and passed a uterine probe. His opinion confirmed that of my brother, who was associated throughout with me in the case, and myself, that there was an extrauterine pregnancy.

The patient, however, was so ill, we all agreed that to operate would kill her, and a decision was arrived at to wait for a few days, and see if any improvement in her general condition could be brought about.

She improved after this, and the operation was performed on 2nd January, Dr Murphy present and assisting.

The abdomen was opened under the spray in the middle line. The tumour was found to be covered in front by adherent omentum. It was adherent to the parietes below for the lower half. On dividing the omentum, it was found to be free above. Since our previous examination the tumour had increased in size, and was now level with the umbilicus. On introducing my hand into the abdominal cavity, I found the cyst closely adherent in Douglas's pouch and round the pelvic brim, making it improbable, even not taking into consideration its size, that I could get the whole cyst out. Accordingly, after packing the abdominal cavity with sponges, I incised the front wall of the tumour. Terrific hæmorrhage followed, which I arrested by packing the incision in the tumour with a sponge. The credit of this suggestion belongs to Dr Murphy, and to it the patient undoubtedly owes her life. The sponge was left, and the sac round it carefully sutured to the parietes, leaving exposed part of the sponge wholly outside of the abdominal cavity. The operation was concluded by suturing the remainder of the parietal wound, a drainage-tube being left to drain the peritoneal cavity. The patient was put to bed apparently little worse for the operation.

8 P.M.—Wound dressed on account of slight oozing.

3rd January.—Patient had a fairly good night; no sickness; pain less since operation; wound dressed under spray. The sponge left in at time of operation was removed, but free bleeding commenced. The cavity where the sponge had lain was plugged with gauze, and the bleeding stopped.

4th January.—Good night with a draught; drainage-tube removed; dressed.

5th January.—Patient complains of a good deal of pain in abdomen; bowels swollen; no evacuation since operation; $7\frac{1}{2}$ grains of calomel and enema operated satisfactorily.

6th January.—Plug of gauze removed and renewed; no sign of bleeding; very little discharge.

7th January.—Temp. $101^{\circ}8$; feels well, however.

9th January.—Dressed. On removing gauze and introducing finger, the cyst can be distinctly felt fluctuating underneath.

10th January.— $102^{\circ}8$.

11th January.—A hypodermic needle pushed into sac withdrew fluid. A director was passed along the needle, and along the groove in the director a pair of dressing forceps was pushed, opened, and withdrawn. About a pint of blood-stained fluid, containing purulent flocculi and smelling of liquor amnii, escaped, but no foetus. The cavity was stuffed with gauze.

12th January.—Temp. $100^{\circ}8$; feels well and comfortable; dressed; gauze plugs removed; two large rubber drainage-tubes inserted. All went well till—

25th January.—In trying to remove a portion of sloughing-looking placenta, free hæmorrhage occurred. The patient was put under chloroform once more, and the whole sac explored and cleared of placental and other *débris*. On searching this, a perfect foetus of $2\frac{1}{2}$ or 3 months was discovered, and is now in my possession preserved in spirit.

The patient was soon able to get about, and felt well, but a small sinus continued unhealed for nearly three months. She is now entirely recovered.

Remarks.—This is my second experience of operating for extra-uterine pregnancy. Dr Underhill read notes of the first case, and showed the specimen—a seventh month's foetus and sac—before the Edinburgh Obstetrical Society. In that case, too, the placenta occupied the front of the sac, fearful hæmorrhage followed incision of it, and the patient was only got into bed alive by plugging the sac with sponges after removal of the foetus. With my present experience I am confident that the patient would have got well if the same means had been adopted. As it was, she died the following day.

In both cases I observed that after exposing the sac, and before arriving at the foetus, three different structures have to be divided—

1. The wall of the sac—varying, of course, in its composition according to the age of the foetus.

2. Placenta—spongy, very vascular, if living, and in both my cases at least half an inch thick.

3. Foetal membranes—in both my cases very tough.

In this case the sponge was pushed through an incision in layer 1 (the sac), lay embedded in and compressing layer 2 (placenta). Layer 3 (foetal membranes) were not interfered with till 11th January, when danger from hæmorrhage had ceased.

In future cases where I find the sac and foetus too adherent or too large to remove entire, I would incise the sac carefully, and if bleeding occurred, plug the incision with a sponge, stitch the sac

to the abdominal wall, and wait for a convenient time before removing the fœtus.

CASE VI.—*Suprapubic Lithotomy.*

J. B., æt. 55. Complains of a constant desire to micturate, discharge of matter with the urine, and pain so constant and severe as to be unendurable.

History.—He has had inflammation of the bladder since 1887. Pus had escaped from the urethra and an opening in the abdominal wall which has discharged urine. The sinus has now healed.

On 21st January 1888, chloroform being administered, I introduced a sound, and found the bladder contracted, thickened, and lined with a calcareous crust. Thinking that the bladder could be more effectually and easily explored by the suprapubic operation, I proceeded to distend the rectum with a bag containing 10 ounces of water, and the bladder with 8 ounces of boracic lotion. The distended bladder was now plainly seen and felt, occupying the hypogastric region. An incision was made in the linea alba above the pubis, and the tissues were seen to be thickened and matted. On this account I worked carefully through the abdominal wall close to the pubic bone. It was soon evident, from the fact of a piece of small intestine making its appearance, that I had opened the peritoneum, which, owing to the hardness and matting, had escaped recognition. This was within an inch of the pubis, and was doubtless accounted for by adhesions—the result of previous urinary extravasation. Reducing the intestine, I stitched the wounded parietal peritoneum carefully, then the skin, and proceeded to perform the ordinary lateral operation. My difficulties had only now commenced, as the patient had a deep, funnel-shaped, rickety pelvis with a very narrow outlet. The staff was reached, at great depth, by the ordinary lateral incision, and the knife pushed along it into the bladder. I found it impossible to reach the bladder with my finger, and had to content myself with introducing a large and long grooved director along the staff, which was now withdrawn. By means of a scoop and forceps run in along the groove of the director, I succeeded in detaching from the inside of the bladder about a small teaspoonful of phosphatic deposit. A long full-sized drainage-tube was now inserted and stitched to the perineal wound, and the bladder washed out with boracic lotion, bringing away a little more *débris*.

After-progress was uneventful. A steady improvement in the patient's general condition followed the operation. The drainage-tube was kept in the bladder for three weeks, when, at the patient's urgent request, though somewhat against my inclination, it was removed. At first some pain and mucus accompanied micturition, which had to be performed four or five times nightly. These symptoms have, however, gradually disappeared, and now the

patient has no pain, does not get up at night, and, except for a trace of mucus in the urine, is perfectly well.

CASE VII.—*Cholecystotomy.*

H. P., æt. 45, married, was the mother of six living children, and had had four miscarriages.

The patient was an active, intelligent-looking woman with nervous complexion and features, black hair, and bright brown eyes.

She was in good condition, though thinner than formerly. She had been occasionally intemperate. The organs, with two exceptions mentioned below, were healthy. Menstruation had been irregular lately, and for the last four years profuse. The tongue was furred, appetite poor, and bowels irregular.

She had never felt well since a miscarriage, her last pregnancy eight years ago, and had had pain in her right side from that date. So far as she could judge, the pains had always been of the same nature as that of which she now complained. The attacks of pain started in her right side over the liver, and extended to her right shoulder and epigastrium. They were accompanied by vomiting and shivering, and made her so ill that she was obliged to stay in bed. Latterly, the attacks had increased in number and severity, so that three or four days of each week had been spent in bed. She had fits, always terminated by diarrhoea. Exercise brought on these attacks.

A lump was first discovered by herself four years ago. It was tender then, and had remained so throughout, but was worse sometimes than others. She said that it became decidedly less and not so sensitive after the purging.

On examination there was felt in the position of the gall bladder a round hard swelling about the size of an orange, which moved freely up and down with respiration. Puncture with a hypodermic syringe showed its contents to be the ordinary opalescent mucous fluid of a distended gall bladder.

The operation was performed on 29th February 1888, the tumour being exposed by a vertical incision through the abdominal parietes, immediately over it, from 2 to 3 inches long. After placing a couple of small sponges behind the distended gall bladder, an aspirator needle was introduced at the fundus, and 6 ounces of opalescent fluid removed. The front wall of the gall bladder was now drawn forwards by two pairs of ordinary artery forceps, and opened sufficiently between them to admit easily my forefinger. Between 50 and 60 small round stones were scooped out with my finger, and washed out with a Higginson's syringe. The gall bladder was sponged dry, the bile ducts explored without finding anything, and the sponges removed from the abdominal cavity.

The only serious difficulty in the operation occurred at this time. One of the sponges was lost amongst the intestines, and before I could find it I was obliged to enlarge the incision. In

future the sponges shall be under my control with ligature or forceps. The difficulty of finding them has to be experienced to be believed. The edges of the thickened gall bladder were now fixed to the abdominal wall, including the peritoneum, by a continuous suture, the edges of the wound brought together above and below with interrupted sutures, a rubber drainage tube left in the bladder, and the wound dressed with carbolic gauze and a wood-wool pad. The operation throughout was conducted with anti-septic precautions.

The after-progress was uneventful. The patient got up on the 9th day, and went home some distance by rail on the 17th day. The wound was entirely healed at the end of five weeks, and her health is now as good as ever it was, and better than it has been for years.

CASE VIII.—*Intestinal Gall-Stone.*

M. J., 54, widow; has always been healthy and strong till present illness. She is an immensely stout woman, though not above the average height, weighing only a few pounds short of 20 stones.

I saw her first on 9th April, a Monday. My brother had been attending her, and diagnosed intestinal obstruction.

Her history was that on Thursday night, three days before my seeing her, she had taken two pills before going to bed. She slept comfortably till morning, when she was awakened by a "dreadful" pain in the bowels. Thinking it resulted from the pills, she got a cup of hot tea and drank it. Soon after this the bowels were very freely moved, and she vomited. The pain continued, and sickness frequently recurred. On Sunday night, the 3rd day of the illness, the vomiting was distinctly fæcal. On Monday at mid-day I saw her. The vomited matter was fluid fæces. There was nothing to be made out by abdominal or rectal examination to throw any light on the case. Operation was determined on with the patient's approval.

The abdomen was opened in the middle line, and the peritoneal cavity exposed by an incision between 2 and 3 inches long. The piece of intestine which appeared was followed by passing it through the fingers held in the abdominal cavity. The appearance of this piece of intestine improved as it passed under review. So the direction was reversed, and soon the head of the colon was reached. From the appearance of the intestines it was evident that the obstruction was below that spot, and therefore in the colon. The abdominal wound was now enlarged sufficiently to admit my hand, with which I examined, ascending, then transverse, and then descending colon. The sigmoid flexure was found to be surrounded by a band of recent lymph, which I pulled away and examined. It was a distinct membrane, purulent on its inner surface. At the same spot I found in the intestine a large hard mass, the stone exhibited,

and, drawing the intestine forward out of the abdomen, examined it. My brother and I agreed it was a large gall-stone, and debated how it should be got out. It could not be pushed on, as the intestine seemed firmly contracted on it. Breaking with a needle pushed through the intestine, as suggested by Mr Lawson Tait, was considered, but I thought the risk of removing it entire by dividing the intestine was least, as the intestine was swollen, congested, and surrounded by purulent lymph. This was done, and I sutured the intestine with an inner continuous and outer interrupted suture of fine silk, including only peritoneum. After suturing the abdominal wound and dressing, the patient was put to bed—1 gr. of morphia being administered per rectum.

The operation was well borne—in fact her pulse never altered—and as no intestine had been outside the abdominal cavity but the portion sutured, we confidently expected a satisfactory result. From the time of the operation she was restless. At night pulse good, temp. 101°.

Tuesday, 10th March.—Temp. 99°·2; pulse 78, good and regular. She was twice sick a little early in the night. Has taken milk and soda water freely for some hours without sickness. No pain or sickness complained of. No tenderness or distension of bowels. She is very heavy and sleepy, and has to be roused to answer questions.

From this time she got more stupid and restless. There was never any more sickness or pain. Delirium came on at night, and on Wednesday morning she died comatose.

No post-mortem could be obtained, and consequently the patient's death cannot be accounted for.

Part Second.

REVIEWS.

Clinical Lectures on Important Symptoms. By THOMAS GRAINGER STEWART, M.D. Edin., Fellow of the Royal College of Physicians of Edinburgh; M.D. Honoris Causa Royal University of Ireland; Hon. Fellow King and Queen's College of Physicians in Ireland; Physician in Ordinary to Her Majesty the Queen for Scotland; Professor of the Practice of Physic and of Clinical Medicine in the University of Edinburgh. Fasciculus II.: On Albuminuria. Edin.: Bell and Bradfute: 1888.

OF these valuable lectures, excellent alike in matter and in manner, it is impossible to write in terms other than those of eulogy. In them the author presents the ripe fruit of painstaking observation continued throughout many years, upon a subject with regard to which he is entitled to speak with authority. They contain

investigations of the highest value, leading to conclusions of much practical importance, and these are carefully compared with the views and opinions of other writers, which are fully set forth with well-matured comments thereon. The lectures are characterized by lucidity of expression and an agreeable style, which render them pleasant to read, and their meaning easy to grasp. It must be remembered that they are lectures which have been addressed to students, and they are not to be judged therefore as if they had been written simply for publication. They contain much which their author would have omitted had he primarily addressed himself to practitioners, but a large portion even of what has been intended in the first instance for his students will be found of great value to those already in practice, and could not be sacrificed without loss to the latter class. Judged as clinical lectures, the contents of this volume must take a high place, and may be held as evidence of the cause which gives the Edinburgh School such a prominent position as a centre of medical teaching.

The first three lectures are devoted to the varieties of albuminous substances found in the urine and their detection, the occurrence of albuminuria in those who may be presumed to be healthy, and its incidence among the sick. These subjects are handled in a skilful manner, the various methods of testing for the different forms of albumen are carefully criticised, and there is a large number of original observations on the appearance of these substances under varied conditions. The investigations lead to conclusions which are at once of scientific interest and practical usefulness, but for these we must refer the reader to the work itself.

The fourth lecture is in our opinion the most valuable in the book. It deals with the causes of albuminuria, and the author fully discusses changes in the blood, alterations in the filtering apparatus, variations in the arterial tension, and abnormal conditions of the epithelium and stroma of the kidney, as causes of this symptom. All these different conditions are admitted to be factors in the production of albuminuria. The only point in regard to which we may be allowed to express regret in this connexion is that amongst the wealth of illustration employed there is no reference to Ribbert's latest paper, containing observations on foetal albuminuria and its mode of occurrence, as it certainly throws a strong side light on the causation of the condition.

This lecture is followed by a series of clinical descriptions and pathological explanations of albuminuria from inflammation, cirrhosis, and waxy disease of the kidney, as well as from febrile and other general diseases. They are characterized by careful observation and lucid explanation. On one point we are glad to find ourselves entirely at one with Dr Grainger Stewart. His experience regarding the time-relation shown by albuminuria and increased pulse tension agrees with our own, and we perfectly agree with him in his criticism of Mahomed's observations.

Lectures follow upon paroxysmal albuminuria, dietetic albuminuria, albuminuria following muscular exertion, simple persistent albuminuria, and accidental albuminuria, as well as on diagnosis and prognosis, and the effects of diet and drugs upon the symptom. These lectures are, like their predecessors, of much interest, and that upon drugs, in which the views of Brunton, Ribbert, Fothergill, Memminger, Ringer, Senator, and more especially the valuable contribution of Saundby are discussed, although leaving us still with purely negative therapeutic evidence, cannot be perused without profit.

We would congratulate the author on having made an important contribution not only to scientific, but also to practical medicine by the publication of these excellent lectures, and we cannot doubt that they will receive the respectful attention to which they have every claim.

Physiological and Clinical Studies. By ALEXANDER JAMES, M.D., F.R.C.P.E., Lecturer on Physiology in the School of Medicine, and Assistant-Physician to the Royal Infirmary, Edinburgh. Edinburgh: Oliver & Boyd: 1888.

THE author of these interesting papers is well known as a typical example of the class of "such rare and happy persons as both know and love their business," to use the felicitous language of R. L. Stevenson. Every subject which he touches becomes instinct with that energy which is so characteristic of himself—every opinion that he forms is marked by his own powerful individuality. Work done under such circumstances must of necessity bear traces of originality of conception as well as fertility of illustration, and although we may at times come to conclusions different from those expressed by the author, we cannot fail to admire the spirit and the method brought to bear upon the various subjects dealt with. Each individual paper in this volume is philosophic in its tendencies, as well as ingenious in its views; while above and beyond this it is marked by patient observation and investigation. We consider, therefore, that Dr James has done well in giving permanent form to these highly suggestive studies, in some of which are to be found, stated for the first time, views which are now part of the "current coin" of modern medicine.

Amongst the most valuable contributions in this volume may be mentioned the papers on "Tubercular Disease from the Physiological Standpoint," to the consideration of which have been brought a wealth of illustration and acuteness of reasoning rarely found in a medical essay; on "Nutrition and Reproduction," in which light is thrown upon many obscure problems connected with disease, and interesting explanations, based upon sound physical and chemical laws, are advanced to account for their appearance;

on "The Physics of the Bladder and Ureters," where views are put forward which are now to be found incorporated in the standard works upon the subject; on "Transudations and Exudations," an admirable piece of work, containing conclusions of great practical value; and on "Tendon Reflex and Clonus Phenomena," in which, besides patient investigation into the phenomena, and explanation of their probable causation, there is a most ingenious suggestion as to how the "mechanical equivalent" of thought may be ascertained.

As many of the essays contained in this volume have appeared in our pages, we are not at liberty to enter upon detailed criticism of the views advanced in them, and we can only add that we have had much pleasure in renewing our acquaintance with these papers, most of which have raised feelings similar to those experienced when we meet with old friends.

Lunacy in Many Lands. By G. A. TUCKER. Sydney: Charles Potter, Government Printer: 1887.

In his introduction Dr Tucker gives us all needful information about the circumstances which induced him to write and publish *Lunacy in Many Lands*. After being connected with a private asylum in Melbourne for six years, he visited Sydney, and was surprised to find there was not any licensed house for the reception of private patients, and learned that the necessity of sending their afflicted friends to a government institution was very repulsive to the feelings of relations. To fill up this want Dr Tucker established the Bay View House Asylum. In 1881 his health failed, owing to twenty-two years of anxiety and care, and fortune at the same time favouring him in a speculation, Dr Tucker determined to take a rest for three years, "a rest but not a rust," as he quaintly puts it. Considering that while a proprietor of a private asylum in Melbourne Dr Tucker did not even know whether there was a similar institution in Sydney, the author may be said to have commenced at the nadir of ignorance to attain to the zenith of knowledge. He determined to devote his justly earned leisure to collect together facts from all the leading institutions in the world for the treatment of the insane, and place them in the form of a report before the Government of New South Wales. For this purpose the Colonial Government furnished him with credentials. Dr Tucker accordingly left Sydney, visited some parts of Australia, Tasmania, New Zealand, and Honolulu, whence he crossed the Pacific to San Francisco. He then visited the asylums of the United States and Canada, after which he made his way through most of the countries of Europe, and saw Tunis and Algiers. He then visited the chief asylums, public or private, in Great Britain and Ireland. Altogether he inspected over 400

asylums in various parts of the world, and communicated with over a hundred others, mostly small ones, travelling about 140,000 miles, and spending £5000. During this visitation, occupying three years and a half, Dr Tucker tells us, "I collected every scrap of information procurable relative to insanity, with numerous plans of buildings, ventilation, and sanitation, with photographs of special interest, which, had I the means, I should have published at my own expense, but Parliament having honoured me by ordering my report to be printed, and in deference to opinions expressed as to expense which would be incurred in the reproduction of these plans, etc., I have reduced my report not only by the omission of all these most valuable illustrations, but by more than one-half of the whole matter collected, which has caused an entire remodelling of the whole work. I am, therefore, not responsible for the absence of elaborate descriptions, but trust that this condensed matter relative to so large an inquiry may still be found of general use, assistance, and interest, although very much regretting the necessity of omitting what may perhaps be considered most valuable information, not only by the general reader, but by those acquainted with the care and treatment of the insane."

This is a serious accusation against the Government of New South Wales, and it was perhaps to wipe off a natural feeling of remorse that on his return to Sydney Dr Tucker was honoured by a complimentary luncheon, at which Sir Henry Parkes rose to propose the toast of the day. Our readers will be much relieved to learn that after being thus ruthlessly abridged to suit the too economical views of the Colonial Parliament, *Lunacy in Many Lands* is not quite a small book. It still comprises 1564 pages of largest size of octavo, mostly in small type and closely printed.

The great bulk of the book is taken up with descriptions of visits to the different asylums, with statistical details taken from the published reports of the asylums, or given in answer to forms of questions prepared by Dr Tucker. Such descriptions are necessarily superficial. This, however, is an advantage to most of those in charge of asylums, who have learned by experience to arrange everything to look as well as possible. We have heard several medical superintendents in Scotland complaining of errors in detail in Dr Tucker's descriptions, but after reading attentively his reports of asylums of which we know something, on the whole we can find little to disagree with. His general tone is friendly, though the critical element is not wanting. No one complains of too much praise; but there are a few remarks decidedly ill-natured. Dr Tucker should have considered that in the best-managed asylums some things may be for a while out of gear, and that he only had a fleeting glance at most of them. Had he even returned once, he might have found what he criticised put to rights. The descriptions are in general complete, do not avoid or seek anything in particular, and are pretty free from stereotyped phrases. There

are, however, some mistakes, and a considerable number of misprints, especially of names of places.

One service for which Dr Tucker deserves thanks is his exposure of Gheel. We always considered the gushing articles which used to appear in different journals and magazines in praise of the cure of lunatics in that place as too large a draught on human credulity. Any one who knows by experience what peasant proprietors on the Continent really are, their avarice and greediness, will pity the insane boarder delivered to their charge. People who came unacquainted with the language and the habits of the Belgian peasant, to be driven about by the superintendent or the burgomaster, are not likely to be shown anything unfavourable. Dr Tucker visited Gheel, and evidently took both time and care in finding out the truth. He is not the only one who has told it, but perhaps no one before has spoken out more freely. "Gheel," he writes, "is an abode of desolation, a lingering survival of remote and barbarous ages, a monstrosity in this nineteenth century, and a humiliating reproach to our modern civilisation." At the same time, Dr Tucker is not unfavourable to the boarding-out system as practised in Scotland, and quotes with warm approval Dr Fraser's expressed views, that great aggregations of the insane in institutions are to be avoided, and that there are a large number of cases of acute insanity in which recovery takes place under the care of ordinary medical practitioners.

Dr Tucker finds the treatment which the insane suffer in Portugal to merit very severe criticism. It is to be hoped that his observations about the state of things may awaken the conscience of that good-natured but indolent people.

The conclusions given at the end by Dr Tucker are not numerous, and given in a rather hesitating tone. Altogether, we suspect our Australian brother is rather of an observant than of a reflective disposition. He thinks that asylums not exceeding 300 patients give better results than large ones. The number of medical officers even in these smaller asylums should be increased. He observes that "it is doubtful whether our present knowledge of mental diseases is not less due to the medical officers of institutions than to the outside profession." In another place he writes: "Opinions point to the fact that the form of insanity has undergone a marked change during the last few years, that the maniacal form is less frequent, and that melancholia has increased." "That insanity is largely on the increase in every country is certain, by the new additions being made to present buildings, and the large number of new asylums constantly demanded as necessary to meet the requirements."

This is a very simple way of solving a difficult and disputed question. One might as well say that it is certain poverty has much increased in Scotland, from the number of poorhouses built within the last forty years.

In addition to his survey of asylums, Dr Tucker gives some details about the teaching of deaf-mutes. He prefers the training schools for imbeciles in the United States to those in England.

On the whole, Dr Tucker's laborious collection of observations and statistics will be useful to those in charge of asylums, to writers of books on insanity, and to those called upon to legislate for the insane; but to the bulk of the medical profession and to the general public it can be of little interest.

De l'Épilepsie Jacksonnienne, Mémoire couronné par la Société de Médecine et de Chirurgie de Bordeaux. Par le Dr E. ROLLAND, Médecin des Asiles "John Bost," de Laforce (Dordogne). Paris: Aux Bureaux du Progrès Médical: 1888.

FROM the prefatory notice of Dr Eugene Monod upon John Bost's Asylums at Laforce, it appears that these consist of six separate buildings for the blind, idiots, and epileptics, of both sexes. Altogether they have 330 inmates, of whom 150 are epileptics. Dr E. Rolland has made good use of his opportunities as the resident physician in studying Jacksonian epilepsy. His statement towards the conclusion of the work, that Jacksonian epilepsy has absolutely nothing in common with epilepsy save the name is surely a misuse of words, which his own observations do not justify. Jacksonian epilepsy is a real child of the great family of epilepsy which shows itself in so many and such wonderful forms. Sometimes we have unilateral fits affecting one side, the leg or arm, or perhaps only a group of muscles, without loss of consciousness. This will pass away, again to return; but the next time, perhaps, the attack begins with unilateral convulsions without loss of consciousness, and then the convulsions pass over to the other side, the attack becomes general, and the patient becomes unconscious. Surely in the latter case it would be absurd to say that we have a new disease which had absolutely nothing in common with the first attack. Epileptic fits without loss of consciousness had, of course, been long ago noted by physicians. The first one I ever saw was when following Trousseau in his Clinique at the Hotel Dieu. He observed that he witnessed attacks of this kind at least once a year. Dr Hughlings Jackson first pointed out the relation of this form of epilepsy to the psycho-motor convulsions. Dr Rolland gives a *résumé* of 106 cases which he has collected from a wide survey of the literature of the subject, adding three from his own experience.

Dr Rolland has an opening chapter on the Anatomy and Physiology of the Cerebral Convolutions. The work is illustrated by 22 woodcuts and 2 lithographs. Altogether this monograph is well finished both in form and matter. It furnishes a gratifying instance of the useful scientific work which may be done in establishments of the kind.

Annals of Surgery for June 1888. London: Baillière, Tindall, & Cox: 1888.

THE previous (May) number was "abdominal" from beginning to end. The one before us is more varied, and therefore we think all the more interesting.

The first article is by Mr W. Thornley Stoker of Dublin, on a case of Extradural Clot successfully treated by Trephining. The history of the case is fully given, and Mr Stoker interests the reader thoroughly by detailing the process of reasoning by which he arrived at the conclusion that trephining was necessary, and that it should be at the particular spot where the extravasation really was. The whole paper is most interesting as well as valuable. Mr Stoker seems carried away with enthusiasm at the success which he has achieved, for in the last paragraph he says, "I have come to this conclusion for future guidance, that if I am in doubt I will operate." That is to say, when in doubt as to whether the extravasation is outside or inside the dura-mater.

The second article is from the pen of Dr Jarvis G. Wight of Brooklyn, on the subject of "Incarcerated Hernia." Dr Wight defines this term as referring to a condition that is neither strangulation nor mere irreducibility. He considers that it implies two things—1, the hernia is irreducible; and 2, the bowel is obstructed, generally with fæces. The pathological condition is first described. The hernia is generally an old one, which, after passing through a varied experience, becomes irreducible from adhesions. Next, either gradually or suddenly the herniated bowel becomes obstructed from accumulation of fæces or gas, or the descent of a fresh knuckle of intestine. Next, Dr Wight describes a number of cases, the main import and upshot of which seems to have been that the patient (to use a peculiar expression of his own) "promptly died" after having been operated on. In his operations Dr Wight found the tissues, sac, bowel, and all so matted together, that the formation of an artificial anus, or resection of the portion of intestine, seemed the only reasonable method of procedure, because the bowel, even if freed from its adhesions, was "no more fit to perform its special function than it was while contained in the hernial sac." As the result, therefore, of his experience, he recommends that in such cases of *incarcerated* hernia, taxis should first be tried with the object of returning the contents of the bowel or any recent addition that may have come down. He mentions several cases in which such a procedure had relieved the symptoms of obstruction, and enabled old persons, mostly females, to live for years in comparative comfort with their irreducible ruptures. Failing the taxis, an operation is necessary.

If at the operation the bowel is found healthy and non-adherent (though in that case we think it could scarcely be an irreducible hernia), it should be returned. If healthy, but firmly adherent, it may be left *in situ* after all obstruction has been removed. If

inflamed or otherwise damaged, an artificial anus should be formed, or the portion of intestine resected. In all this we quite agree with Dr Wight, for it is what every one will consider sound surgery, but we cannot approve of his recommendation to return the sac either opened or unopened. Modern surgeons, we think, consider that an unopened sac if returned to the abdominal cavity, is a source of great danger; and an opened sac is, we believe, invariably cut off or disposed of in such a way as to make the descent of bowel into it an impossibility.

The conclusion of Dr Lewis's paper on Intestinal Surgery comes next. This will probably be noticed elsewhere, and therefore need not be referred to here.

Dr Edward A. Christian, of Pontiac, writes the next paper on "Exsection of the Head and Upper Third of the Humerus." The case reported shows a much more useful limb than one would expect after so extensive a removal of bone.

The editorial articles are on "Non-union in Fractures," by Dr L. S. Pilcher, and on "A Model Operating Theatre and its Fittings," by Mr C. B. Keetley. The former combats the opinion, ascribed to Burns, that non-union of fractures is generally due to "imperfect immobilization." Dr Pilcher considers that non-union is due rather to constitutional and local causes. He mentions several of these, but omits two that we have been accustomed to look upon as important, viz., damage to a nutrient artery by the fracture and the absence of a true periosteum at the insertion of tendons and ligaments. By both of these causes nutrition is rendered imperfect, and therefore callus is likely to be deficient. It is evident that these conditions—the one natural, the other the result of the fracture—are most likely to be present in those very fractures which most frequently develop a false joint or unite only by fibrous tissue, bone formation being deficient.

The article by Mr Keetley is descriptive of an operating theatre devised by M. Mannoury of Chartres. Its most notable features are,—1. The whole interior is composed of iron, glass, or cement, so that the room and everything in it can be thoroughly doused at any time; 2. The tables are of glass, except the operating table, which is perforated zinc; 3. Reverdin's stool, which consists of two steps, by which the patient mounts the table, the upper step also can be made a seat for the surgeon, and a cross-bar at the top makes a convenient lean when he is performing tedious and delicate operations, such as for vesico-vaginal fistulæ; 4. The construction of the theatre was carried out under the eye of the surgeon who was to use it. This is necessary; otherwise, as Mr Keetley says, "the result will be a number of shams and some tremendous errors." M. Mannoury's theatre cost only £400 including everything. The *Annals* finishes with an Index of surgical progress of great interest, and reviews of several surgical works.

The Student's Handbook of Chemistry, with Tables and Chemical Calculations. By H. LEICESTER GREVILLE, F.I.C., F.C.S., etc. Edinburgh: E. & S. Livingstone: 1887.

THIS is an excellent manual, and is likely to maintain its place among the many manuals of chemistry.

It is not without errors, which might have been avoided, as when he speaks of an Order of plants called "Aurantiacea."

It is likely to be popular with students.

Unofficial Formulary, B.P.C.

THE British Pharmaceutical Conference appointed a Committee of their number to prepare a formulary of unofficial remedies, of which Mr W. Martindale was chairman, and this publication has been the result. It is published by J. & A. Churchill, London, 1887, and contains some excellent formulæ for rare but valuable and much used drugs.

India in 1887: As seen by ROBERT WALLACE, Professor of Agriculture and Rural Economy in the University of Edinburgh. With Plates and other Illustrations. Pp. 362. Edinburgh: Oliver & Boyd: 1888.

THIS beautiful book is well named, *India in 1887*, as seen by an enthusiastic and energetic Professor of Agriculture. It describes the cattle and horses, grain and fruits, digging and dunging, needed to support the teeming millions of India. At first it might appear to have little or no right to have a notice in a medical journal; but surely the food supply of a race is as important to a physician as its materia medica, and tillage goes hand and hand with sanitation.

Professor Wallace had taught four Indian civilians and eleven native scholars at Cirencester, and felt that it was his duty to go to India and see what his pupils were doing, and what encouragement they were getting from Government.

His opinion is, that from want of encouragement they are not doing so much as they should.

The account of the native breeds of cattle is very interesting, and much increased in value by the photographs of typical specimens. Some interesting and original observations about the colour of the skin of cattle in hot climates will be valuable to the physiologist, as also the contribution to the important question as to the best age for castrating bulls which are meant for draught animals. If, as in this country, it is intended to fatten and use for food as early as possible the young bullock, castration should be in infancy; but if for use as a draught animal, either for speed or strength, it is best to postpone castration till the age of three or four years.

The Panjrapol is a most interesting institution, half refuge half

hospital, in which diseased, injured, or stray animals may find shelter. In one 5000 beasts of one kind or another have been found congregated. They are managed by guilds, and supported by contributions, voluntary or assessed.

Professor Wallace has the courage of his opinions, and not only describes the crops, implements, manures, etc., but gives excellent advice to the Government as to the duties of forestry officers, the advantages of a school of agricultural chemistry, and especially as to the necessity of a thoroughly efficient college of agriculture.

Our beneficent rule has ended the wars, tyranny, and bloodshed which checked the increase of the population, and now, if we are to feed those millions and prevent famine, Government must do all in its power to develop the resources of the country. This work is the very best kind of assistance in this direction. A highly educated, keen observer, without either prejudices of old routine or prepossessions of amateurism, comes with a fresh eye, and is thus able to give many a valuable practical hint. Many difficulties of caste and custom, racial and climatic peculiarities, will stand in the way of reform; but we are convinced that effort in the direction indicated by Professor Wallace will do much for the happiness and civilisation of India.

The work is beautifully got up, and written in a pleasant, easy style.

Inebriety: its Etiology, Pathology, Treatment, and Jurisprudence.

By NORMAN KERR, M.D., F.L.S., etc. London: H. K. Lewis: 1888.

THIS is an extensive work of upwards of 400 pages.

We cannot pretend to have read it, but on looking through it we notice that Dr Kerr's first point is to establish as a fact that *Inebriety* is essentially a disease. Of course, he admits that every form of drunkenness is not disease. There is vicious as well as diseased indulgence. It is the involuntary or impulsive form of drunkenness that is meant by the term "*Inebriety*." Dr Kerr next draws a resemblance and a distinction between inebriety and insanity, dwelling specially on the frequently hereditary character of both.

Periodicity, the influence of debility, and various diseased conditions, are also referred to. Dr Kerr favours the opinion, which is now generally held, that alcohol is resorted to by inebriates for the same reason that other narcotics are taken, viz., its anæsthetic power. The etiology is considered under predisposing and exciting causes, of which a very extensive list is given. But why should these cause inebriety in some and not in others? Dr Kerr explains this by a somewhat enigmatical statement, which, however, is probably as near the truth as anything one could formulate at present. He supposes that there is a prior pathological condition on the part of the inebriates, an inability to reproduce "that nervous force which is essential to healthy brain life." This, we take it, is equivalent to a loss of inhibitory power. If this is what Dr Kerr means, there is no

doubt that he is correct, for every one knows that there is this deficiency in inebriates. But the question still stands, "Whence this deficiency?" Is it hereditary or acquired? There is no doubt it may be either. That this loss of control is often congenital and hereditary is doubtless one of the strongest arguments that temperance reformers have for limitation of the temptations to drink that custom has established in this country.

The book is written in an interesting and popular style. It contains a vast amount of information on the subjects connected with inebriety, and is arranged so that reference to any subject or paragraph is easy.

The ordinary reader will find a great deal of valuable information on the medical aspects of inebriety, which it would be well that every one should know more about; and the professional reader will find reports of cases and methods of treating inebriates that will be of much value to him.

Part Third.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION LXVII.—MEETING VII.

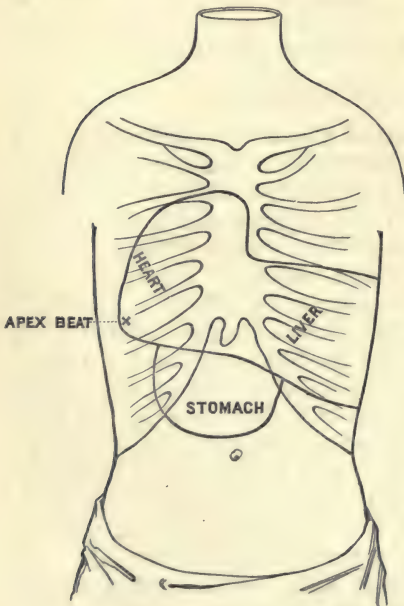
Wednesday, 4th April 1888.—Dr JOHN SMITH, President, in the Chair.

I. EXHIBITION OF PATIENT.

Professor Thomas R. Fraser showed a case of TRANSPOSITION OF THE THORACIC AND ABDOMINAL VISCERA in a married woman, 23 years of age. She had given birth to her first child in December 1886, and while nursing the child had suffered much from weakness, and had fainted several times. This illness seemed to have been partly caused by excessive and prolonged lactation, but it was also an accentuation of an experience of giddiness, faintings, and breathlessness from which she had occasionally suffered since childhood. It is probable that the displacements of the viscera would have escaped attention but for the circumstance that a few months ago she accidentally discovered a beating when her hand was placed near the right nipple, which greatly alarmed her, as she imagined it was caused by a "beast in her breast trying to make its way out." The discovery made her very nervous; and, probably because her attention had been drawn to its occurrence, the sensation of beating became a frequent and distressing one, and it soon became associated with severe attacks of dyspnoea. She afterwards had a gastro-intestinal disorder, which confined her to bed for several weeks. She was attended in this illness by Dr Johnston of Leith; and during it the palpitations, dyspnoea, and giddiness became still more distressing. As the latter symp-

toms continued after her recovery from the gastro-intestinal disorder, she was sent for examination and treatment to Dr Fraser, who expressed his great indebtedness to Dr Johnston for the opportunity of determining the remarkable abnormalities that were present. Dr Fraser saw her at the Royal Infirmary on the 2nd of March. She then complained of breathlessness and palpitation, and indicated the right mammary region as the situation where the palpitation was felt. On placing the hand on this region, a well-marked impact was felt, with a distinct presystolic thrill; and on auscultating, the heart sounds were heard to be accompanied with a distinctly audible presystolic murmur. On proceeding to percuss the chest, it was found that there was dulness over the greater part of the right side, and a clear resonant note on the left side from the supra-clavicular region to the fourth rib, where also the respiratory sounds were clear and of normal character. It was obvious that the heart was displaced. Inquiry showed that there had been no illness to account for the displacement, for with the exceptions stated the patient had enjoyed singularly good health throughout her life. The other non-symmetrical viscera were then searched for, and it was found that the liver was also displaced, the greater part of it being situated in the left side; the right lobe, or what corresponded to the normal left lobe, extending across the epigastrium to within a short distance from the apex

beat of the heart on the right side. It was also found that the stomach was transposed, the greater portion of it being situated on the right of the middle line, and that the spleen was on the right side in place of the left side, its dulness being found between the eighth and tenth ribs in the right axillary region. A diagram of the anterior aspect of the thorax and abdomen was exhibited to illustrate the position of these viscera. It was pointed out that the viscera are placed in higher positions than is usual, a circumstance accounted for by the patient being in the fifth month of a second pregnancy. The condition of the patient prevented an examination from being made of any



other important structures in the abdomen or pelvis, but an opportunity would probably be afforded for this being done after delivery.

Inquiries and observations were made which showed that the patient is righthanded and not lefthanded when sewing, writing, feeding, etc., and this was confirmed by the results of testing the power of each hand in grasping the dynamometer, the right hand being considerably more powerful than the left. The question of heredity had also been considered in connexion with this remarkable freak of development. The patient's grandparents are dead, but no abnormality was known to have existed in them, and they had been singularly healthy and had attained to an old age. The father and mother are alive, and had been examined by Professor Fraser's resident physician, Dr Tofft, and their viscera had been found to occupy the ordinary situations. The patient herself is the seventh member of a family of eleven, of whom two, a brother and a sister, are dead. Of the survivors, six sisters and one brother had been examined (several of them, in kind compliance with Dr Fraser's request, by Dr Johnston), and had been found to be normal. The patient's own child, fifteen months old, had likewise been examined, and the viscera were found in their usual situations. Although no hereditary tendency to transposition of viscera had been discovered, a tendency to cardiac disease appeared to exist in the family, as the mother and three sisters suffer from cardiac disorder, and in three of them the lesion is, as in the patient, a presystolic mitral one. The patient had been under treatment in the Royal Infirmary for the cardiac symptoms produced by this lesion, and the breathlessness and palpitation have now disappeared. This result had a special interest to Professor Fraser, as he has thereby had the opportunity of relieving, by the administration of strophanthus, the symptoms produced by disease of a heart occupying so unusual a situation. It was pointed out that the case agrees with the great majority of those that have been recorded, in which transposition of the heart is accompanied with transposition of all or nearly all of the other non-symmetrical viscera. In the absence of organic disease, the transposition does not appear to cause any inconvenience, and it is compatible with a prolonged and healthy existence. The Professor added that of 78 cases recorded, in 70 all the viscera were transposed, and in 8 the heart only. In only a few of the recorded cases had the transposition been discovered during life.

II. ORIGINAL COMMUNICATIONS.

1. *Dr W. W. Ireland* read his CASE OF CEREBRAL INJURY FROM A FALL, which appeared at p. 1073, vol. xxxiii., of this Journal.

Mr A. G. Miller said that an interesting point in the case was whether there was or was not a fracture. An examination of the membrana tympani would have aided the diagnosis. When bleeding from the ear occurred in these head injuries, there was usually either fracture of the base of the skull, or else fracture of

the osseous meatus from the condyle of the jaw being driven forcibly against it. In a case in which the blow came on the symphysis of the jaw, there was bleeding from the ear, and the patient was for a time unconscious. He was thought to have sustained a fracture of the base, but got well too quickly for that. On examination there was found not a rupture of the membrane, but a fracture of the osseous wall of the meatus. An American police surgeon had recently published some observations that tended to throw light on some of these obscure injuries. He found from a series of post-mortem examinations, that where the internal injury was in the neighbourhood and on the same side as the external injury there was fracture, but that if the extravasation was not the result of fracture, it was on the opposite side of the head—*contre-coup*. Another point he observed was that where there was very little external injury there was more likely to be damage to the brain than where there was a scalp wound. Mr Miller added that he believed there was a fracture in Dr Ireland's case, from the subconjunctival ecchymosis and the position of the cerebral injury on the same side as the blow.

Mr Cathcart thought that the vomiting of blood in the case, taken along with the symptoms on which Mr Miller had dwelt, indicated the presence of a fracture passing also across the roof of the nose and pharynx. The blood poured out would pass down the pharynx and be swallowed, and the vomiting of the blood was thus easily accounted for; otherwise it was difficult to understand. He thought from the description of the accident that there was fracture of the skull as well as laceration of the meningeal vessels, as Dr Ireland had supposed.

Dr Clouston said such cases as Dr Ireland's had a very high psychological interest. Hitherto they had heard much of the surgical and medico-legal side of such cases, and very little about the mental functions of the brain which were affected. In such a case as Dr Ireland's, they had a series of symptoms of the greatest possible interest, and he was very glad that it had fallen into the hands of a man like him to observe the mental as well as the bodily symptoms. They of the mental branch of the profession had real cause for complaint against their surgical brethren, because of the way in which they neglected the mental symptoms. He had seen many cases of this kind recorded in which it never seemed to have occurred to the writer that there was any mental function of the brain at all. Traumatic injuries of the brain brought out mental symptoms in two ways. If there was heredity to mental disease, they brought out in some cases an attack of what might be called ordinary insanity. The cases of the second sort, where they had had special mental symptoms directly attributable to the injury of the cortical texture of the brain, were of especial interest. For example, in nearly every instance of such cases they had two resulting symptoms. The

one was the loss of the higher self-control over speech, thought, and action, the outward manifestation of which was the irritability to which Dr Ireland had referred, and also intolerance towards certain drugs as well as alcohol. These cases lost the power of controlling the effect of alcohol, which in the smallest quantity caused either delirium, intense headache, or premature drunkenness with violence and impulsiveness of an unrestrained character. There was no better proof of the delicacy of the human brain, and how it required to be sound than to watch the effect of a blow, which had ruptured many small vessels, on the mental nature of a man or woman afterwards. Such people could seldom go through sustained exertion. They could not go on with their work, nor bear subjection to worry as before. Many were subject to intense cephalalgia of a very terrible character. The moral faculties in most were altered. He thought they needed a very great deal more observation in regard to the mental or cortical effects of brain injury, and he had no doubt that if these mental symptoms were more acutely observed, if the terminology in which ordinary mental symptoms could be expressed were more used and better known, they should have more knowledge of the brain itself. In regard to the diagnosis, he would take issue with Dr Ireland as to there being rupture of the pons, or an injury on the floor of the fourth ventricle. Rupture of a vessel in the floor of the ventricle was so deadly that they could hardly agree that such occurred. He would rather believe that rupture of vessels or a pressure from clot had occurred around the nerves as they issued from the brain. He had no doubt that in such a case there was an immense number of capillaries burst. It had been shown by Duret, that a very slight blow to the head of an animal was sufficient to cause rupture of a number of capillary vessels, and they were caused in a great many directions. They scarcely realized that the brain was a moving organ floating in fluid, and that therefore they were apt to have a number of such bursts from injuries. He had seen an immense number of capillary apoplexies in various parts of the brain, and especially in the brain cortex, in post-mortems after injuries. The symptoms mentioned by Dr Ireland in regard to memory were extremely interesting. They seemed to show that the registered impression through the senses on the cortex of the brain was not an impression that was written very clearly, or in a vivid way to begin with. It was very like a dream. Many of them dreamed constantly. If they did not talk of these dreams and bring them up to consciousness they forgot them very readily. But if they did talk of them, they became so written in on our memories that they did not forget them readily. It seemed, further, as though some of the impressions written in vividly enough at the time, yet because of their recent occurrence before such injuries, had not become sufficiently "organized" in the brain cortex to be remembered. Before concluding, he would

mention a surgical point in connexion with Mr Miller's remarks. One patient of his struck another with the flat side of a shovel. There was no external injury that could be made out by four physicians even after the scalp was shaved, but at the post-mortem they were astonished to find a fracture of the base of the skull with marked laceration, and apoplexy of the cerebral tissue.

Dr Ireland, in reply, said that with reference to the fracture of the skull he did not consider any one symptom as pathognomonic. It was necessary to analyze all before coming to a conclusion. He could not recollect whether the membrana tympani was examined or not. He had not done so himself. There was, however, no interference with the hearing power. As to the subconjunctival ecchymosis, it was present in both eyes. If due to fracture, both wings of the sphenoid must have been involved. The vomiting of blood, he thought, was due to blood passing from the naso-pharynx into the stomach. He agreed with Dr Clouston, that surgeons might give great assistance if they recorded the mental as well as the surgical symptoms in such cases.

2. *Dr Dods* read his paper on TROPICAL MALARIA AND ITS SEQUELÆ, which appeared at p. 1090, vol. xxxiii., of this Journal.

Surgeon-Major Black pleaded for more exact definition of terms in speaking of malarious diseases. He thought the term malaria should be restricted to diseases of the intermittent type. Instead of ascribing the occurrence of the diseases to certain states of the atmosphere, it would be better to adopt the germ theory to explain them. This would simplify matters, and would facilitate treatment. In Hong-kong there were marshes of considerable extent which had been drained, but the subsoil water from the hills was found to be the cause of outbreaks there still.

Professor Grainger Stewart said that he set a high value upon such papers as that of Dr Dods, embodying as they did the results of large experience in regard to diseases seldom met with in home practice. He thought that the evidence in favour of Klebs and Tommasi-Crudeli's observations was more complete than Dr Dods would seem to admit. There were four points to which he wished to allude, and that rather in the way of asking questions than of enunciating opinions. The first was the albuminuria sometimes found in people who have lived in an ague district. It seemed to him that there were two forms of it. In the one there was an ordinary inflammation of the tubules, not of a very severe kind, attended by little dropsy and few tube-casts. These cases went on pretty persistently, but not acutely, and tended to get well. The second was a form in which no tube-casts were to be found and no trace of dropsy, where apparently the albuminuria was functional rather than organic. He should like to ask Dr Dods what experience he had as to these two conditions, and the respective values of arsenic and quinine in their treatment.

Next, he had again and again met with patients and with records of cases in which paralytic symptoms were attributable to malaria, and yielded to antimalarial treatment. He had brought some of those which he had observed under the notice of the Society about fifteen years ago. Could Dr Dods supply them with more facts as to the degree of frequency with which the paralytic complications occurred? There was, thirdly, a peculiar form of disease he had sometimes met with in old Anglo-Indians. They exhibited symptoms like those spoken of by Dr Dods in describing the diarrhoea with colourless discharges. This was a very distressing disease. He had seen the patient going on steadily from bad to worse, and ultimately dying. The case looked somewhat like pernicious anæmia, the blood deteriorating in a marked manner, but the cause was evidently the constant diarrhoea. Three or four times a day a white creamy material was discharged, sometimes frothy, sometimes not, but evidently deficient in bile. He remembered one patient improving under large doses of bismuth and careful regulation of diet, but in the end he went wrong; and he (Professor Stewart) had never yet been able to save a case of this kind. Lastly, he wished to mention a peculiar manifestation of malaria—a very interesting and satisfactory one to meet with, as it proved very amenable to treatment. He saw with Dr Gairdner of Crieff a gentleman who was supposed to have phthisis. There was some roughness of breathing at one apex, along with fever and a peculiar barking cough. The fever seemed too great for phthisis. After careful examination, he found reason to concur in Dr Gairdner's opinion, that there was not sufficient organic disease to account for the symptoms. He ascertained, on inquiry, that the patient had been employed as an engineer on one of the West Indian railways, and although he had never had an attack of ague, he had been exposed to marsh poison. He was accordingly put on large doses of quinine, with the result that in a few days his cough and fever had disappeared. He wished to ask Dr Dods whether such cases were of frequent occurrence in malarious regions.

Dr James asked Dr Dods if he had any information bearing on the antagonism which was supposed to exist between malaria and phthisis. This antagonism was said to exist, inasmuch as phthisis was found to supervene on the disappearance of malaria. This might be explained on the ground that drainage got rid of the malaria, and overcrowding brought on the phthisis. Some held that the malarial poison was antagonistic to the bacillus. Others thought that it was the rendering of the lung more functional that prevented the phthisis.

Dr Felkin held that the cause of the malarial process was a germ. He had examined a number of cases abroad and since his return, and had almost invariably found this germ, and he was inclined to believe it was the germ found by Crudeli. He

believed it was best to examine in the cold stage. He had missed it in the hot. He thought it could be transmitted from the father to an unborn child, and hoped to bring before the Society three or four cases to show this. In one case of a foetus that had attacks before it was born, he was having the spleen examined. In regard to malaria in dry places, the influence of the subsoil water was apt to be forgotten. It was easy to understand the occurrence of ague in the Sahara when they remembered that at a certain depth there were impermeable rocks, and the subsoil water might be raised to within a few inches of the surface. Bearing on Prof. Stewart's remarks, he had three patients who fought in the Soudan and suffered from ague. They all had hæmoptysis, and were cured by large doses of quinine or Warburg's tincture, of which he had had tabloids made to obviate the nausea that sometimes followed its use. As illustrating the influence of masked malaria on the weak points of a man's system, he mentioned the case of a veterinary student, who had been seven years in India, and had his first attack in the Bay of Biscay. When working for his examination he suffered from brow ague. In the holidays, when riding he had sciatica, and latterly he had been subject to paroxysmal attacks of orchitis, not from gonorrhœa, but from the excitement attendant upon his engagement.

Dr Dods said, in reply to *Dr Black*, that if the germ theory were the true one, no explanation had been given as to the occurrence of the germ in particular localities only. And there was nothing in the appearance of the so-called "*bacillus malarie*" which was pathognomonic of paroxysmal fevers. It was just as likely that these organisms found in the blood were the result of the fever as the cause. There were no marshes in Hong-kong to account for the fever there. He had never seen casts in the albuminuria to which Professor Stewart had referred. In old-standing cases of fever he thought that arsenic was preferable to quinine. In the fever of Italy more benefit was to be got from arsenic. The diarrhœa of which Professor Stewart had spoken was generally associated with atrophy of the liver. He had never seen a case recover. As to the antagonism of phthisis, he could not speak with certainty, but most of the cases of phthisis he had seen amongst natives occurred in the families of well-to-do people and generally town residents, while ague was most common amongst the agricultural classes, and phthisis was not. *Dr Felkin* had drawn attention to the fact of there being generally sub-soil water where malaria was rife, but this could not be the case in Hong-kong, where fever nearly always occurred after a cliff (which might be perpendicular) had been scarped. He had never seen hæmoptysis in any of the cases.

OBSTETRICAL SOCIETY OF EDINBURGH.

SESSION XLIX.—MEETING VIII.

Wednesday, 30th May 1888.—Dr BERRY HART, *Vice-President, in the Chair.*

I. *Dr Halliday Croom* showed—(a.) A MULTILOCLAR OVARIAN CYST which he had removed from a patient, who died on the day following the operation from fatty degeneration of the heart. (b.) DISEASED UTERINE APPENDAGES removed for severe dysmenorrhœa.

II. TWELVE CASES OF LAPAROTOMY FOR DISEASE OF THE UTERINE APPENDAGES, by *Dr Brewis*. This paper appears at p. 117 of this Journal.

Dr Halliday Croom had pleasure in congratulating *Dr Brewis* on his paper, in which there was not room for adverse criticism. *Dr Croom* cited the case of a patient, who had a large fibroid tumour reaching up to the umbilicus, for which *Mr Lawson Tait* removed the ovaries, with the result that the patient bled continuously, and ultimately died of anæmia. *Dr Croom* said that he also, like *Dr Brewis*, had had an incomplete operation in a case in which he was unable to remove one ovary, which was fixed deep down in the pelvis by strong adhesions. The tube, however, was removed. The patient was relieved of her symptoms, but a sinus formed, running from the abdominal wound down to the ovary, through which the patient menstruated every month.

Dr Freeland Barbour congratulated *Dr Brewis* on his success, and asked if menorrhagia were a permanent symptom in any of the cases. In a large number of patients with diseased appendages, which *Dr Barbour* had watched, it seemed to him that in none of them was the pain sufficient to justify operative interference.

Dr Berry Hart said that *Dr Brewis's* paper was a model from a clinical point of view. The cases were concisely, and at the same time thoroughly recorded. He was glad to hear that *Dr Brewis* was investigating the pathology of the diseased structures.

Dr Brewis thanked the Society for the kind reception which they had given to his paper. He said that it was well known that if the entire ovary be not removed that bleeding may continue, and in the case mentioned by *Dr Croom* a small portion of ovary may have been left behind, or the hæmorrhage may have been due to changes taking place in the tumour itself. With regard to *Dr Croom's* incomplete operation, it differed from his (*Dr Brewis's*) in that the tube was removed, while in *Dr Brewis's* case neither tube nor ovary was removed. In some of the cases menorrhagia was present, but was not the symptom for which the operation had been performed. In each case the operation was performed for pain. Pain is in all cases a question of degree, the amount of which is often difficult to estimate, and each case must be judged by itself as to whether or not an operation is justifiable. In *Dr Brewis's* cases the relief which the patients have ex-

perienced, and the diseased appearance of structures removed, prove that operative interference was necessary.

III. A CONTRIBUTION TO THE ANATOMY AND CLINICAL HISTORY OF INCARCERATION OF THE RETROFLEXED GRAVID UTERUS, by *Dr Halliday Croom*. This paper will appear in a future number of this Journal.

Dr Freeland Barbour said that *Dr Croom's* case had some interesting points. He agreed with *Dr Croom*, that conception in the retroflexed uterus was more frequent than was generally supposed. The majority right themselves, and are not seen by the physician. *Dr Barbour* described a case which was retroflexed before pregnancy, but which replaced itself between the eighth and tenth week. During the interval and in the earlier weeks of pregnancy it became again retroflexed, and subsequently replaced itself about the same time as on the first occasion. During five years at the Cowgate Dispensary, *Dr Barbour* had only seen two cases of retroverted gravid uterus giving rise to symptoms. The length of the cervix, in *Dr Croom's* valuable preparation, was interesting as accounting for the fact that the bladder was not tilted upwards. Though the utero-vesical peritoneum was high, for some reason the cervix had elongated instead of being tilted upwards, and the bladder being in relation to the cervix had remained still in great part a pelvic organ. *Dr Barbour* thought that retention was frequently caused by a kink in the urethra, and did not result from pressure.

Dr Ballantyne had seen two cases of retroflexed gravid uterus in the Buchanan Ward; one replaced itself, the other had to be replaced.

Dr Berry Hart said the case was difficult to diagnose. He was not astonished at the elongation of cervix, as it was likely to occur wherever you had traction exerted either by the distending bladder or uterus. It was common to have spontaneous replacement, and *Dr Hart* thought that the bowels had something to do with it. He thought that *Dr Croom* had recorded a case of great interest.

Dr Halliday Croom briefly replied.

IV. ON THE LABIA MINORA AND HYMEN, by *Dr J. W. Ballantyne*. This paper will appear in a future number of this Journal.

Dr Freeland Barbour said the subject did not lend itself to discussion, but the thanks of the Society were due to *Dr Ballantyne* for his valuable paper and beautiful sections.

SESSION XLIX.—MEETING IX.

Wednesday, 13th June 1888.—*Dr UNDERHILL, President, in the Chair.*

I. *Dr Brewis* showed a BARTHOLINIAN CYST of large size, which he had removed from a patient a short time ago. The patient said

she first noticed it ten years ago, at which time she was troubled with vulvar irritation. It remained about the size of a walnut till four months ago, when the patient became pregnant, after which it grew rapidly; and when Dr Brewis excised it, it was about the size of a man's fist. The cyst is unilocular, and is simply the distended duct. The gland itself can be felt at one end of the cyst, in the interior of which the open mouths of two or three of the canaliculi can be seen. The interesting point is that it existed and remained stationary for ten years, and then *pari passu* with pregnancy rapidly increased in size.

II. A CASE OF PARASITIC FÆTUS, by *Dr B. Langley Mills*. Read by the Secretary. It appears at page 116 of this Journal.

The President said the Society was grateful to Dr Mills for his interesting paper, but expressed regret that there had been no post-mortem examination.

Professor Simpson remarked that it was unfortunate that no dissection of the placenta had been made.

III. A SUCCESSFUL CASE OF CÆSAREAN SECTION, by *Surgeon-Major Arnott*. Read by the Secretary. It appears at page 140 of this Journal.

Professor Simpson said they had listened to the record of a very interesting case. He felt rather disposed to agree with Dr Arnott, especially after the success of Säger and Leopold, that Cæsarean section is the operation to be preferred.

The President remarked that cases requiring Cæsarean section are so rare in this country that we are not in a position to give an opinion. The case recorded by Dr Arnott seemed to him (the President) to be more suitable for Porro's operation than for Cæsarean section. Suppuration had evidently taken place in the uterine wound, and had caused the uterus to become adherent to the abdominal wall. He congratulated Dr Arnott on his success.

Dr Brewis thought that Dr Arnott deserved to be congratulated on his success, especially as the operation had been performed after craniotomy had been tried, and with the patient in an exhausted condition. He noticed that in enlarging the uterine wound Dr Arnot had used scissors, and that there had been considerable hæmorrhage. Dr Brewis had assisted the late Dr Macdonald at a Porro's operation, in which the uterine wound was enlarged by tearing the cut edges apart. There was little hæmorrhage. Dr Brewis thought that the ovaries should have been removed in Dr Arnott's case, to prevent the patient from becoming pregnant again.

Dr Martin said that the child should be taken into consideration as much as the mother, and in these days of advanced abdominal surgery Cæsarean section should be performed. The pregnant uterus, owing to its vascularity, was in a suitable condition for healing.

Dr Haultain remarked that suppuration of the stitch holes more frequently occurs after carbolic acid is used than after hot water.

Dr Rattray said that belladonna plasters are not desirable on the breasts. He has used Eau de Cologne and water for years with great success.

IV. A CASE OF EXTRAUTERINE GESTATION, by *Dr A. E. Morison*. Read by the Secretary. It will appear in a future number of this Journal.

Professor Simpson said the result was an interesting one for abdominal surgery. It shows that the operation should be performed early. The thanks of the Society were due to Dr Morison for his valuable communication.

V. HISTORICAL NOTE, by *Dr A. S. Currie*. Read by the Secretary. It will appear in a future number of this Journal.

The President said the paper was not one that could be discussed historically. It showed that Henry VIII. had syphilis; and from the obstetric history of the two queens it was probable that they had syphilis communicated to them.

VI. ON THE EFFECTS OF COMPRESSION ON THE SHAPE OF THE FETAL HEAD, by *Dr Milne Murray*. This paper will appear in a future number of this Journal.

The President thanked Dr Murray for his important paper, in which was demonstrated a fact which upsets old theories, viz., that by compressing the foetal head in its antero-posterior diameter you do not enlarge the transverse. The opposite of this view is stated in all the books. The practical difficulty is that in nearly all cases you do not get an exact antero-posterior grip with the forceps, but an oblique one. The paper was one of the greatest merit.

Professor Simpson said the paper was valuable and interesting. He had always had the impression that antero-posterior compression was dangerous. Certainly it was so with the older instruments, which indented the skull. It was important to be sure that the same result is got with forceps as with the cephalotribe. He considered axis-traction forceps safer than the older ones, as with the former we make only sufficient pressure to get the grasp, while with the latter considerable force is exerted in order that they may be kept on the head.

Dr Murray thanked the Society for the reception given to his paper. He did make comparative investigations with different forceps, and got the same results. Former experiments of the same nature were made, more to test the effect of compression on the contents of the head than to determine the changes effected on the shape of the head. His experiments, on the other hand, took no account of the former effects, but were solely directed to the latter.

Part Fourth.

PERISCOPE.

OCCASIONAL PERISCOPE OF DERMATOLOGY.

By W. ALLAN JAMIESON, M.D., F.R.C.P., Extra Physician for Diseases of the Skin, Edinburgh Royal Infirmary; Lecturer on Diseases of the Skin, Edinburgh School of Medicine.

ANTHRAROBIN: A SUBSTITUTE FOR CHRYSAROBIN.—Liebermann finds that the active principle of Goa powder is chrysarobin, which in suitable circumstances by oxidation, as for example in alkaline solutions by absorption of the oxygen of the air, is readily transformed into chrysophanic acid, changing from yellow to red. He ascribes the efficacy of this remedy to this reducing and oxygen-absorbing property, and has sought to discover some substance allied chemically to chrysarobin possessed of similar powers. By reversing the process with alizarin, a substance having a chemical formula related to chrysarobin, but which Jarisch found to be inefficient in the treatment of psoriasis, making use of powdered zinc and ammonia, he produced a body which he has named Anthrarobin. This is a yellowish-white powder, permanent when dry in the air. It is best dissolved in boiling alcohol, and the solution will keep for a week at least if in a well-corked bottle, and can be diluted with glycerine if desired. Behrend, who has tested it in psoriasis, gives various formulæ, but prefers an alcoholic tincture.

Rx	Anthrarobini	5.0	Rx	Anthrarobini	10.0
	Alcohol	45.0		Alcohol	40.0
	Solve in baln. Aq.			effervescendo solve.	
	Signa, Anthrarobin-tincture.				

This may be used even on the face, and he has applied it for weeks to the eyelids, without a trace of œdema of these, or of inflammation of the conjunctiva resulting, though such render the employment of chrysarobin to the face or its vicinity impossible. The sole drawback to anthrarobin is the yellow staining of the skin, but this in contrast to chrysarobin does not extend beyond the point of application. Slight burning sensations, too, succeed its application for a variable but usually brief period. Like chrysarobin it stains the linen, and the marks, if some days old, cannot be wholly removed. The action of anthrarobin is intensified if the affected parts are rubbed with Hebra's spirit of soap, or with soft soap, previous to its application. Behrend had noticed that the inflammation of the skin which follows the use of chrysarobin was more rapid in its onset and more severe the more the patient touched the parts with soap; hence he interdicted the employment of soap, and either added to the ointment some vinegar, or sponged the skin with vinegar before applying the chrysarobin. This lessened the inflammation, but weakened at the same time the effect of the remedy. With anthra-

robin, on the contrary, soap can be used without fear of causing inflammation, while increasing its activity, probably, as Liebermann has suggested, because oxidation occurs more quickly in presence of an alkali. In general it acts more slowly than chrysarobin, so that treatment carried to entire cure required several days more, yet the greater tolerance of the skin to anthrarobin compensated for the prolonged duration of treatment, and several patients preferred it on this account. In price anthrarobin is, according to Behrend, one-third less than either chrysarobin or pyrogallic acid, while it is much more prompt in its effect than the latter.—*Vierteljahresschrift für Dermatologie und Syphilis*, 2 Heft, 1888.

KREUZNACH MOTHER LIQUOR AND CHLORIDE OF CALCIUM IN THE TREATMENT OF SKIN DISEASES.—As a result of exact investigations into the capacity for absorption of the normal skin, the views regarding the specific effects of mineral baths have been so completely overturned, that the therapeutic influence of such have been explained on the theory of cutaneous irritation and its relation to tissue changes. This was, however, fatal to any specific difference between individual mineral waters. In the case of skin diseases it is undeniable that sulphur and salt water baths exert a curative action. The researches of Unna and Schulz have rendered it probable that the peculiar effects of sulphur baths arises from the reducing action of that component on the part or in general. All chloride of sodium baths do not act alike, so that some other factor in their composition must be found to explain their difference in action. The iodine and bromine in the waters of Kreuznach were believed to account for their beneficial effects, but there are several considerations which negative this view—one, that other waters which contain these ingredients are not equally advantageous; another, that they exist in the form of salts and are therefore inactive; and lastly, that the quantity is too minute to produce any appreciable influence. There is, however, one substance present in sufficient quantity, according to Dr E. Lier, which may be the determining element, chloride of calcium, and he has made a series of observations with a view to decide this in Unna's private clinique. Chloride of calcium is present in a proportion of about 2 per cent. in the Kreuznach mineral water, and in about 345.5 per 1000 in the mother liquor. In no other water is the percentage so high. Both the mother liquor and the salt of calcium exert a superficial and a deep action on the skin. The superficial one is due to the attractive power on water which chloride of calcium possesses, and accordingly induces dryness of the skin. This effect is obtained by the employment of baths at a rather cool temperature, 90°, and of short duration, with little or no addition of mother liquor; by the use of glycerine jellies and pastes containing the mother liquor, but very little fat. Such are indicated in erythema, moist eczema, pustular affections, psoriasis, tubercular glands. The penetrating action is on the deeper cells and commencement of the lymph canals.

It influences with energy the centrifugal secretion stream in the skin, and also the endosmotic and exosmotic movements in the cells. It is obtained by the use of warm baths, 95° to 100°, of long duration, with addition of considerable amount of mother liquor; by compresses soaked in pure or diluted mother liquor under impermeable coverings; by salves and pastes containing much fatty material, and the mother liquor. This theory serves also to explain the effect of the waters of Kreuznach on uterine ailments and diseases of joints.—*Monatshefte für praktische Dermatologie*, No. 8, 1888.

THE PRESENT POSITION OF THE THERAPEUTICS OF SYPHILIS.—Dr M. von Zeissl observes that recovery from syphilis can occur spontaneously in a longer or shorter time without the administration of any drug, and when such does take place, it is frequently complete. There is no doubt that mercury in most cases causes the manifestations of syphilis to disappear quickly, but it is equally certain that if it is employed very early, *i.e.*, simultaneously with the appearance of the primary lesion or of the first exanthem, those indeed fade rapidly, yet in place of these more frequent and more obstinate relapses arise than when time is afforded in the first instance for the complaint to develop. Mercury, if administered during the early weeks of syphilis, has no more power than the expectant treatment, or that by iodine, to annihilate the syphilitic diathesis in a short space of time; on the contrary, too soon prescribed it delays the cure. Mercury, according to Zeissl, should not be given before the eighth or tenth week after the appearance of the first eruption, and then only should this yield too slowly to an expectant (dietetic and regiminal) or iodine treatment; or if severe and threatening symptoms on the side of the sense-organs, the viscera, or the central nervous system, should manifest themselves. He adheres strictly to the view of H. Zeissl, "not that mercury is pernicious, but that the period when it was used in the treatment of syphilis was wrongly selected." Employed at this later date in the course of the disease, a much smaller amount serves to cause the symptoms to vanish than when used from the first.—*Klinische Zeit. und Streitfragen*, Neue Ausgabe, 5 Heft, 1887.

An entirely contrary view is expressed by Schwimmer, who says that syphilis, left to itself in its first stages, is frequently followed in practice by most fatal results. The most destructive forms of syphilis affect almost exclusively such persons as have either had no treatment from the first, or who have been irregularly or insufficiently treated from the outset. His observations lead him to the conviction that early treatment is of the greatest advantage both as regards the course and the consequences of this disease. In all cases of an acute or chronic nature we endeavour as quickly as possible to attack, and if we can, to destroy the germ of the complaint. Should syphilis be made an exception to this rule? At the same time, since the diagnosis of the primary lesion cannot with

certainly be determined in all cases, during the first three or four weeks local treatment alone should be employed. He uses salol in powder to the chancre, which produces rapid cleansing of its surface, and continues its use till cicatrization; for the induration the emplastrum hydrargyri remains the best application. Constitutional treatment can usually be commenced in the fifth or sixth week after the occurrence of infection. For this he uses mercury, and gives the preference to corrosive sublimate in pill, as so administered it is least apt to irritate the stomach, while this salt is not so likely to occasion salivation as inunction, a method of treatment to be adopted in severe cases, though commonly as a sequence to the sublimate pills. Experience teaches that in all cases the treatment by mercury must be stopped so soon as the symptoms have disappeared, and any unpleasant results of the exhibition of the drug begin to manifest themselves. Frequent observation instructs us that recurrences are more constant in proportion as the duration of treatment has been short, and the more rapidly the mercury is excreted from the system. As respects iodine he is of opinion that it cannot replace mercury, that while under certain conditions it is of very great value, in numerous instances, given at a wrong time, it is quite powerless. It is not advisable to commence the treatment with preparations of iodine; the fittest period for their administration is always after a mercurial course. The effect of iodine in syphilis is,—(a.) Tonic. Patients taking small doses, from 4 to 8 grains of iodide of potass daily, show a marked increase of tissue-change as shown by improved digestion and sharpened appetite, with visible improvement in nutrition. (b.) Antiseptic. He believes that some part of the therapeutic effect is owing to a destructive power on the carriers of the syphilitic virus in the organism, partly to its physiological dynamic properties. Of the preparations of iodine, the tincture he has used with benefit in severe examples of bone affections. From 30 to 60 grains daily of potassium iodide need never be exceeded; the dose should always be taken before meals. Iodol he does not appear to have given internally; locally it has no advantages over other well-tried remedies. He speaks favourably of pilocarpine in the later manifestations, and cites two cases where it succeeded after iodine and mercury respectively tried had failed. The use of baths alone, without the assistance of drugs, exert absolutely no effect on the course of the disease. On the contrary, he has often noticed that latent syphilis manifested itself in individual cases, and that patients who were apparently free from it exhibited anew late forms after prolonged courses in the shape of baths and drinking the waters of various spas. The warm springs of Lipik in Hungary are, however, he thinks peculiarly valuable in favouring the elimination of the syphilitic products, if employed at the proper time. The entire treatise can be recommended as the most complete extant on the treatment of syphilis, embracing all the newest methods (*Die Grundlinien der heutigen Syphilistherapie*).—*Monatshefte für praktische Dermatologie*, Ergänzungsheft 11, 1888.

OCCASIONAL PERISCOPE OF TUBERCULOSIS.

By ROBERT WM. PHILIP, M.A., M.D., F.R.C.P. Ed., Physician to the Victoria Dispensary for Consumption and Diseases of the Chest, Edinburgh.

IF success do not attend the attempts at an effective elucidation of the many difficult problems connected with tuberculosis, the failure will not be due to lack of activity on the part of investigators. Six years have passed since the announcement of Koch's bacillus stimulated the physician's mind afresh, and much that is of interest has resulted. Within the last two years a more determined effort has been made to deal with the question from the practical side. Reference is made more especially to the conjoint efforts of a large and important committee of French workers. A considerable endowment has been provided through voluntary subscription, experimental and clinical investigation has been instituted on an extensive scale, and more than one special periodical has been established. Lastly, a congress was held in Paris during the last week of July, under the presidency of Professors Chauveau and Villemin, when questions relating to the pathology, etiology, and therapeutics of tuberculosis were discussed.

While emphasis is given to the French work, on account of the extreme diligence and energy which have been manifested in the combined efforts, the excellent work produced at home and in other countries is not overlooked. Never was there more hope that a rational therapeutics of tuberculosis might be established. Never has it seemed so likely that "consumption" might yet be written in the list of tractable diseases. In view of the rapid advances and the interest which accrues to the subject, it is proposed from time to time to make brief memoranda in the Journal of points of practical significance.

THE TREATMENT OF PHTHISIS (by Dr A. Durand, Lyon).—The treatment of phthisis may either be *defensive* or *offensive*. The old method of treatment by cod-liver oil, phosphates, iron, arsenic, and other tonics may be taken as the type of the *defensive*. The *offensive* method rests on an acceptance of the bacillary etiology of phthisis, and consists essentially in an attack on the parasite by means of agents which possess properties presumably noxious to the development, and, perhaps, to the life of the organism. Dr Durand holds the defensive method of little account. His observations refer to the value of so-called antiseptic agents (though the name is open to question). His procedure is similar to that already advocated by Dr A. Meunier, namely, the subcutaneous injection of eucalyptol, of phenol, and of iodoform, separately or combined, dissolved in liquid vaseline. From $2\frac{1}{2}$ to 5 grammes of the solution, prepared after the formula of Dr Meunier, were injected twice, thrice, or four times weekly. The results obtained were gratifying, and sensible benefit was manifested from the date when the inject-

tions were commenced. Especially worthy of note was the early increase of strength, the improvement of appetite, and the gain in weight (even when work was being carried on). The state of asomnia or of disturbed sleep was reduced, and night-sweating was markedly diminished, more particularly in non-febrile cases, while the cough (especially under the influence of phenol) was rendered less frequent and harassing. The expectoration was much lessened, and the sputum rendered less thick and yellow, with a gradual return to the mucous character. At the end of two months, modification in the physical signs might be traced, namely, gradual diminution in the râles, the sounds generally becoming drier in character, while the extent of the diseased surface was reduced. Dr Durand emphasizes the necessity of continuing the treatment for long, even after the patient might appear cured, and he relates cases in support of his position. No bad effects were traceable to the treatment. The results obtained in private practice, where the conditions of life were less unfavourable, were more striking than those which were based largely on hospital and dispensary observation.—*Bulletin de la Phtisie Pulmonaire*, No. 3.

THE RELATION OF SURROUNDING CONDITIONS TO THE PROGRESS OF BACILLARY INVASION IN TUBERCULOSIS (by Dr L. Trudeau, New York).—By a triple series of experiments Dr Trudeau has endeavoured to demonstrate the influence of surrounding conditions on the development of bacillary phthisis. Ten rabbits were similarly inoculated with a solution holding in suspension a pure cultivation of tubercular bacillus. Five of these were allowed to run about freely, while five were placed in a box and confined in a dark cellar, deprived of light, air, and exercise. All the rabbits had the same fodder supplied. Five other rabbits were placed in a dark, damp hole, and were badly nourished, but no inoculation was attempted. Of the five inoculated but allowed to run about freely, one suffered from tuberculosis. Of the five inoculated, but penned up, all became affected with the disease, four dying within three months. Of the remaining five, none suffered, though minute examination was made of the organs. The experiments point in favour of the efficacy of the bacillus as an infecting agent, and strengthen the theory, resting on the basis of more direct observation, as to the fight that is carried on in the living subject between the cell and the micro-organism. The fight necessarily becomes unequal when the cell's vitality is lowered through the depreciation of surrounding conditions.—*Bulletin de la Phtisie Pulmonaire*, No. 3.

THE HYPODERMIC INJECTION OF ANTISEPTIC SUBSTANCES IN PULMONARY PHTHISIS (by Drs A. Filleau and Leon Petit). The authors record afresh the benefits which they have obtained from the subcutaneous injection of carbolic acid in pulmonary phthisis. They make use of solutions of two strengths, viz.:—(a), a 1 per cent. solution of absolute phenol in distilled water; and (b), a 2 per cent. solution of absolute phenol in distilled water. If the phenol

be pure, no accident need be feared, provided the injections be made slowly and the solution gently warmed. The dosage varies from 10 c.c. of either solution per week to 10 c.c., 15 c.c., and even 25 c.c. per day. No accident is recorded, and evidence of intoxication, except in slight degree and slowly produced, has not been obtained. The first indication of an overdose is frontal headache. When the manifestations of scrofula are present, the authors recommend the following:—

R	Iodi,	.	.	.	.	12	partes.
	Potass. iodid.,	.	.	.	.	3	"
	Phenol. absol.,	.	.	.	.	10	"
	Aq. distillat.,	.	.	.	.	1000	"

Of this solution the dose is the same as of the other two. The authors further suggest formulæ similar to those of Dr Meunier, whereby phenol may be injected in more bland solution.—*Bulletin de la Phtisie Pulmonaire*, No. 4, Mai 1888.

PREDISPOSITION IN TUBERCULOSIS.—Professor Councilman of Baltimore, in discussing the question, defines “tuberculosis as an infectious disease produced by the tubercle bacillus.” Why “the bacilli do not exert any action at all, and, in another case, do enter the tissue, multiply and produce the disease, can only be explained by differences in the tissue.” Discredit is thrown on the doctrine of a pre-existing bronchitis or pneumonia which becomes tubercular. The author is convinced “that the importance of family history as showing that some special condition of the tissues, something analogous to a peculiarity of feature or expression, is transmitted, has been greatly over-estimated.” Probably 40 per cent. of all persons living in lands where tuberculosis is common have at some time in their lives had some tuberculosis. In opposition to the often cited case of Brompton Hospital, the facts observed in other hospitals—specially those of Germany—are quoted, as evidence in favour of the contagiousness of tubercular disease. Stress is laid “on the fact that a pulmonary tuberculosis must be rather far advanced before physical signs, which are absolutely diagnostic of the disease, can be elicited, even by the most skilled diagnostician.” Hence Dr Councilman holds that “the earliest, most important, and only certain diagnostic sign of the disease is the presence of the tubercle bacilli,” and he calls attention to the fact of the limited number of examinations conducted on these lines. He is inclined to accept the theory of the direct inheritance by transmission of the bacilli from the mother to the foetus by way of the circulation. Analogy is drawn between tuberculosis and syphilis. In support of the position the observations of Charrin, Johne, Landouzy and Martin, and Jani are quoted. Some of the author’s facts are not strictly correct, as, for example, when he states that bacilli may be contained in the milk of tuberculous cows, even when the gland or udder is free from tuberculosis.—*New York Medical Journal*, 21st April 1888.

THE PORTAGIOUSNESS OF PHTHISIS.—Dr Porter, St Louis, cites a number of cases to prove the contagious nature of pulmonary tuberculosis. He thinks the cases point to the possibility of infection both by the air and by tubercular milk and flesh. Stringent measures are recommended for the exclusion of danger from the latter source.—*The Journal of the American Medical Association*, 17th March 1888.

COMMUNICATION OF TUBERCULOSIS BY RITUAL CIRCUMCISION.—Mr Eve records a case of tubercular sore on the penis, with secondary tubercular abscesses in the groin, in a child five months old, apparently traceable to infection at the time of circumcision. The child was circumcised when eight days old, and the wound appeared to do well. Six weeks later the swelling in the groin was discovered. Mr Eve inoculated a guinea-pig with some of the caseous material, and in ten weeks obtained unmistakable tuberculosis in the animal. Inquiry showed that the ritual operator, a consumptive, after removing the prepuce, had poured wine from his own mouth over the cut surface. The operator died of phthisis some months later.—*The Lancet*, 28th January 1888.

Part Fifth.

MEDICAL NEWS.

ROYAL COLLEGES OF PHYSICIANS AND SURGEONS, EDINBURGH, AND FACULTY OF PHYSICIANS AND SURGEONS, GLASGOW.—The following lady and gentlemen passed their final examination for the triple qualification in Medicine and Surgery at the sittings held in July 1888, and were admitted L.R.C.P. & S. Ed., and L.F.P. & S. Glasg.:—Thomas M'Cubbin, Govanhill; David Scott Moncrieff, Edinburgh; Gilbert Gordon, Toronto; Joseph Adam Nolan, Edinburgh; Thomas Everard, Edinburgh; Richard Griffith, Carnarvon; John Richard Haigh Dyson, Huddersfield; William Wendt Margenout, Edinburgh; Charles Barry Taylor, Manchester; Lilian Agnes Hester Jenkins, London, N.W.; Rupert Wilberforce Clayton, Wrexham; Lucien Milbourne Clark, Edinburgh; Nathaniel Henry Runciman, Cork; Robert Trimble, West Bromwich; William Dwyer Russel, Tipperary; Thomas Sprot Allan, Falkirk; Alexander Lang Murray, Portobello; Newton John Newbold, London, W.; Charles Albert Wickham, Limerick; John Henry Briggs, Manchester; Charles Edward Lownds, Newcastle-on-Tyne; Charles Pearce, Ashton-under-Lyne; Andrew Davidson, Belfast; Alfred Doniforth Vardon, Edinburgh; Marius Francois Xavier Nalletainby, Edinburgh; Edward Treharne, Edinburgh; Harry Evelyn Mahonie, Sheffield; William Keiller, Edinburgh; William Joseph Ryan, Edinburgh; Walter Halliburton Macdonald, Edinburgh.

EXTR. COLLINSONIA CANADENSIS LIQUIDUM (Hockin).—This root has now obtained considerable reputation in America in the treatment of various affections of the genito-urinary system; and this preparation of Hockin, Wilson, & Co. will be found useful and convenient.

IODISED OIL—OLEUM IODI.—This is a solution of pure iodine in about equal parts of vegetable oil and water. It contains 10 grains of iodine in each fluid ounce. It is an excellent counter-irritant in bronchitis, rheumatism, and allied affections. It is prepared by the Blythswood Chemical Co.

"CONCENTRATED LIQUORS."—Fletcher, Fletcher, & Stevenson, London, have sent us specimens of their "Concentrated Liquors," including Liquor Buchu, Liquor Cardam. Co., Liquor Aurantii, Liquor Chiratae, Liquor Camph. Co., etc. These are excellent preparations, and when diluted with seven volumes of proof spirit form *tinctures* of the strength of the B.P., and when diluted with 19 of water form *infusions* of the strength of the B.P.

TABLOIDS OF COMPRESSED ANTIPYRIN, each containing 5 grains, prepared by Burroughs, Wellcome, & Co., will be found very convenient and efficacious, and are likely to find much favour with the profession.

FLUID BEEF AND CHICKEN EXTRACT, FLUID CHICKEN EXTRACT, PEPTONISED FLUID BEEF EXTRACT.—We have received from W. Wallace Auld & Co., Edinburgh, samples of these preparations, and can confidently recommend them to the notice of the profession as excellent preparations.

KREOCHYLE—LIQUID MEAT.—Having received from The Kreo-chyle Co., London, a sample of this liquid meat, we can recommend it as a most valuable preparation.

SOLUBLE SACCHARIN (Burroughs, Wellcome, & Co.)—An excellent preparation, and superior to other forms of saccharin.

MR JOHN BURY, Manchester, has sent us a packet of his "SNOW-DRIFT CAKE FLOUR," which we have had tested. It is an excellent article, and good, palatable cakes may be made with it at a trifling expense.

WE understand that at a recent meeting of the Sanitary Institute of Great Britain, held in the Royal Institution, London, a First Prize Medal was awarded to Messrs BURROUGHS, WELLCOME, & Co., for "Digestive Ferments and Invalid Food Preparations."

COPY OF AN ORIGINAL SIGN BOARD IN BURTON'S OLD CURIOSITY SHOP, FALMOUTH.—ROGER GILES, Surgin Parish Clark and Skulemaster, Groser and Hundertaker, Respectably informs ladys and gentleman that he drors teef without wateing a minit, applies laches every hour, blisters on the lowest tarms, and vizicks for a penny a peace. He sells Godfather's kordales, kuts korns, bunions, doktersh osses, clips donkies, wance a munth, and undertakes to luke arter every bodies nayls by the ear. Joesharps, penny wissels, brass kanelsticks, fryingpans, and other moozikal hinstrumints hat greatly rydooced figers. Young ladys and gentlemen larnes their grammur and langeudge in the purtiest mannar, also grate care taken off their morrels and spellin. Also zarmzinging, tayching the base vial, and all other zorts of fancy work, quadrils, pokers, weazels, and all country dances tort at home and abroad at perfekshun. Perfumery and snuff in all its branches. As times is crul bad I begs totell ee that i has just begunned to sell all sorts of

stashionary ware, cox, hens, vouls, pigs, and all other kinds of poultry. Blackin-brishes, herrins, coles, scrubbin-brishes, traykel and godley bukes and bibles, mise-traps, brick-dist, whisker-seed, morrel pokkerankerchers, and all zorts of swatemaits including taters, sassages and other garden stuff, bakky, zizars, lamp oyle, tay kittles and other intoxzikatin likkers, a dale of fruit, hats, zongs, hair oyle, pattins, bukkits, grindin stones, and other aitable, korn and bunyon zalve, and all hardware, I as laid in a large azzortment of trype, dog's mate, lolipops, ginger-beer, matches and other pikkles, such as hepsom salts, hoysters, Winzer sope, anzetrar.—Old rags bort and sold here and nowhere else, newlayde heggs by me Roger Giles; zinging burdes, keeped, sich as howles, donkies, paykox, lobsters, crickets, also a stock of a celebrated brayder. Agent for selling gutty-porker souls. P.S.—I tayches gography, rithmetic, cowsticks, jimnastiks and other chynees tricks.—GOD SAVE THEE KING.

OBITUARY.

DR JOHN MILNER FOTHERGILL.

BETWEEN the years 1860–1865 the Edinburgh School of Medicine was at the zenith of its fame as a teaching school. Goodsir and Christison, Syme, Simpson, and Hughes Bennett within the University, Spence, Gairdner, Warburton Begbie, and Littlejohn in the Extra-Mural class-rooms, made it a School of extraordinary power. The New Infirmary and the New University Buildings, with all the magnificent teaching appliances of the last decade, were still unthought of; but with the small class-rooms, starved laboratories, and cramped hospital wards, still good work was done, and immense enthusiasm was roused in the leading students. In those days there was probably more room for individuality, and oddities were probably more characteristic and less noticeable. Nowadays the constant grind which is absolutely essential even for a pass, the multiplication of text-books, and the much less powerful personality of the professoriate, with the stern discipline of a Students' Representative Council, tend in the direction of producing a complacent, self-satisfied mediocrity, a level—probably a high one—of general education in the profession; yet we sometimes miss the outstanding characters of an earlier age.

Foremost among these was John Milner Fothergill. Born of a stout dalesmen race, he might, by his vast personality, have been an exaggerated caricature of the wildest dream ever imagined by a satirist of the typical John Bull. Enormously stout, even as a lad, with a round rosy face and long black hair, his great carcass, set upon sturdy legs wide apart, might be constantly seen at the University gate, a centre of all mirth and jollity. To him the students' hostelry was too well known. By many names he was called; some of his teachers will remember him as the "Pirate

Captain." But with all his wild Bohemianism and his Falstaffian ways and bulk, any one who came in contact with him who had an eye to see recognised in him a man of a commanding personality, with immense power of good or evil. The writer, then a demonstrator, once said to him, "Fothergill, you are a very clever fellow; why do you pretend not to be, and waste your time?" "Do you think I am clever," said he. "Yes, I know it." "Well, then, watch me and I'll try." And from that day to this, with all his oddities, rustic manners, and intense self-consciousness, Fothergill showed himself to be a man of great ability, power of work, perseverance, and originality in expression, if not in experiment.

A great and successful student he never was at the University, even after he began to work, he had wasted too much time for that, but he took his degree, in 1865, with credit, passed the colleges, and then, after graduation, with a loyalty that did him much credit, he went home to Morland to assist his father in the rough work of a general country practice in the Westmorland hills. His father was a quaint specimen of the old school, eupeptic, squareheaded, with a firmly knit frame, without the enormous bulk of his son, who, with native shrewdness, much kindness, and the wisdom of experience, attended the stalwart dalesmen and statesmen of his native valleys. He came, we are told, of a good medical ancestry, including Dr John^h Fothergill of London and Anthony Fothergill of Bath. The latter was the Fothergill of the Fothergillian gold medal, which distinction Milner Fothergill afterwards won. For four years, however, he stood the burden of the country practice, and gained experience of a certain kind; but wishing a larger field, where he could see more sick folk with less distances between them, he went off, got experience in a great Dispensary in Leeds, where, in 1869, he obtained the post of Senior Resident Medical Officer. He worked then so well, that in 1870 he obtained the Hasting's Medal of the Association for an essay on *Digitalis*. He then, after two years at Leeds, went to the Continent, working under Rokitsansky at Vienna and Traube at Berlin.

But London was the goal of his hopes, and a chair of clinical medicine with ample time for study and writing was his proper sphere. Unfitted by his bodily frame for work as a general practitioner, he was eminently endowed with a power of assimilating information, and of putting it in an easy way in fair conversational language, so that he that runs may read. So in 1872 he settled in London as a physician, taking the membership of the Royal College of Physicians, and was soon elected Assistant-Physician to the West London Hospital. After some years he became Assistant-Physician and afterwards Physician to the London Hospital for Diseases of the Chest. He never had the good fortune to obtain a post in a great teaching school, so he had to teach from his desk, if not in the wards.

Fothergill was a voluminous writer, and, since the time, now

eighteen years ago, when he won the Hastings Medal with his essay on *Digitalis; its Mode of Action and its Use*, numerous works have appeared with his well-known name on the title-page. Amongst these we may mention as the most important, *The Heart and its Diseases*, a thoroughly practical treatise, which attained a success in every way deserved; *The Practitioner's Handbook of Treatment*, based upon rational therapeutics, and the means, through several editions, of leading many a younger member of the profession to treat his cases on scientific principles; *The Antagonism of Therapeutic Agents*, which gained the medal of the Medical Society bearing the name of his ancestor; *Indigestion, Biliaryness, and Gout in its Protean Aspects*, marked by keen appreciation of the causal nexus existing between these affections; *The Diseases of Sedentary and Advanced Life*, a somewhat diffuse and rambling series of papers upon many of these ailments; *A Manual of Dietetics*, embracing much valuable teaching upon a subject too little studied; and *Vaso-Renal Change versus Bright's Disease*, in which, with much that was of real value, there was a highly artificial and largely imaginary division of the inhabitants of this country into two classes—the Norse and Arab types. In all these works, the strong individuality of the writer was prominent; and if we were inclined to regret that he allowed his tendency to employ language of a more racy than scientific character to display itself, we could not but admit the force and suggestiveness of his teaching.

If not an original thinker in the strict sense of the term, his mind was endowed with two gifts which often pass for originality. He had the power of bringing knowledge to a focus, so to speak, and he had also the faculty of catching the current tendency of the times and rendering it articulate. These two characteristics made it possible for him to make his own clear ideas stand out in strong relief upon the hazy background of scarcely formed conjecture. They are valuable characteristics, and, used as they have been by him, they have been the means of rendering real service to many a younger man by placing facts before him in an impressive as well as a suggestive style.

No man knew better than Fothergill how to describe a case, or a group of cases, so as to make the malady and diathesis he was describing easily recognised. He was not always absolutely correct; he often sacrificed precision to picturesqueness, his atmosphere was too clear and his distances too near. His Norsemen and Celts, Arabs and Jews, were all too perfectly typical, and either rejoiced in their splendid diathetic advantages, or groaned over their dyscrasias with too great certainty. Diet and regimen were sure to produce effects with accuracy and despatch. Fothergill's drugs and combinations were always perfect in their results. Everything was sure to go as it should, and the weapons of his warfare always hit the mark.

His many books testified to his extraordinary diligence at his desk. He was never idle; if he was not writing a book, he was busy with medical journalism. His connexion with the defunct *Medical Examiner* was rendered obvious by many a witty article, and to some American magazines he used to furnish page after page of special correspondence on most varied subjects; medical gossip of all kinds; personal sketches, sometimes satirical, but never venomous; long tirades about medical reform and the delinquencies of the College of Physicians; essays on diet and therapeutics—they were always readable and amusing. Indeed, Fothergill was probably better known in America than in London.

Though Fothergill never attained a large consulting practice, yet he was commencing to found one, on the two great pillars of the confidence of his professional brethren and the gratitude of his patients. Some consultants, the very highest ones, owe their reputation and success to the confidence of the profession, the knowledge that their opinion is valuable and their conduct upright. Others, often fairly successful at first, get their work through the public by the pushing of some great or rich lady, by books well advertised, or by church connexion well worked, by the reciprocal courtesies of colleagues or fellow-teachers.

Fothergill was connected with no school, was a reformer in medical politics, and somewhat rash with his tongue on the subject of the great corporations and their heads. He had everything against him, and yet many well-known men were glad to have his opinion on their patients, and, as a rule, the patients, once they had got over the first visit, became his friends. The warmth of his heart, his obvious interest in the case, his freedom from self-seeking and greed, and the child-like innocence and frankness of his self-confidence, inspired both trust and affection—his profession was so obviously not a trade. Had he lived, his practice would have become a good one, though not a very large one.

For some years he had suffered from diabetes, and many other symptoms which he put down to gout. A few weeks before his death gangrene of the foot came on, for which no surgical interference was possible, and the end came from diabetic coma.

Born April 11, 1841, he was little over 47 years of age at his death, and many years of successful work might have been hoped for. An honest, hearty, simple soul, he had stuck to his work under physical difficulties and discouragements that would have broken many a man. A stalwart fighter, loving war for its own sake, he often lost a chance which a more cautious man would have taken, and perhaps gave offence where none was intended. Humorous, vigorous, and friendly, while any of his generation survive they will keep a warm place in their hearts for the memory of John Milner Fothergill.

DR JAMES MURRAY M'CULLOCH.

DR JAMES MURRAY M'CULLOCH, who died at Dumfries on the 25th of June last within a few days of attaining his 84th year, was born at Creetown in Kirkcudbrightshire in 1804, and was therefore one of the oldest, as he was also one of the most widely known and respected of our provincial medical practitioners. He held for many years the most extensive practice in the South of Scotland, where his professional skill and reputation brought his services into constant requisition for the more serious class of cases, and caused him to be sought and sent for to long distances on either side the Border.

He continued in practice till within a few months of his decease, retaining almost to the last the full powers of his vigorous intellect. Endowed with a splendid physical constitution, it was only about three years since that his strength began visibly to fail, when, partly owing to a neglected cold, as well as the straining of his voice at a public meeting he was asked to address, partial paralysis of the vocal cords gradually supervened, eventually necessitating the operation of tracheotomy.

On account of his advanced age this extreme measure was deferred as long as possible, but at last, by the advice of Dr M'Bride of Edinburgh, as well as at his own urgent request, it took place on the 17th of January this year, and was submitted to by Dr M'Culloch with characteristic fortitude.

The operation was successfully performed by Dr Clark, assisted by Drs M'Donald and Lorraine of Dumfries, and convalescence progressed favourably for several weeks. In February the patient was able to leave his couch, and great hopes were then entertained of his ultimate recovery, but the cold east winds of spring set in, obliging him to keep his bed, and after this for the first time the Doctor began to lose heart; this for him meant everything, and made it afterwards doubly difficult for himself, as for his attendants, to combat with his growing weakness. It soon became evident that though the dreaded symptoms of pneumonia were still absent, that the patient was gradually losing ground, and that the vital powers were indeed, though slowly, giving way. There was no sudden change, however, and Dr M'Culloch continued to linger for some weeks with a steady pulse, but at length, towards the end of June, he began to sink more rapidly, ceased to take food, and at twenty minutes past four on a fine summer afternoon, the world-wearied spirit of the aged physician passed peacefully from earth.

Dr M'Culloch was educated in the Universities of Glasgow and Edinburgh, receiving his diploma in 1826 from the Royal College of Surgeons of the latter, and in the year following the degree of M.D. Edinburgh. He studied afterwards in London and Paris, where he obtained hospital experience, with the additional advantage of association with many noted physicians and other eminent men, in the latter city more especially.

On the completion of his medical curriculum he travelled in

Europe and the East, and visited India, where he resided for some time in Calcutta, attached to the medical staff of one of the British regiments.

On returning to this country he settled in Dumfries in 1831, and the following year saw him fighting with death in one of its most appalling forms, in the midst of the cholera epidemic, which decimated the population of that town in 1832. When recalling the incidents of that terrible and gloomy period, Dr M'Culloch has been heard to say, that he visited as many as seventy patients in one day, and yet in many houses not a single individual was left alive, and that he had frequently to drag the bodies to the door himself, to be called for by the "dead cart," which went its dismal rounds, as at the time of the plague of London.

It was while thus devoting himself to the stricken inhabitants that he was himself attacked by the fell disease, and nearly lost his life; happily, however, he was spared to become again, and for many years, the benefactor of suffering humanity.

In 1834 Dr M'Culloch married a daughter of the late Samuel Lafone of Liverpool, a lady who became truly the helpmate of all his undertakings, and who sympathized with and shared his philanthropic efforts. Of this marriage five children were born, of whom two daughters still survive.

In the year 1848 the town of Dumfries again suffered from Asiatic cholera with scarcely less severity than at the time of the previous visitation, and a second time also Dr M'Culloch experienced its pitiless attack, being seized with the dangerous symptoms in the house of a patient dying of the same. On this occasion he was rescued from the brink of the grave by the devotion of his wife, who, after placing her children in safety at a distance, returned to the pestilence-stricken town, thence quietly but firmly refusing to leave her husband's side.

From many causes, this year was one of accumulated trial both to Dr and Mrs M'Culloch. In it they lost their only son, a fine boy, of whom his father was both fond and proud. In the course of years also other and deeply-felt family bereavements followed; but the doctor was not one to mourn unduly, rather he roused himself, mitigating the poignancy of his own sorrow by working for the benefit of others.

A true philanthropist, there was one cause especially that he espoused, to which he devoted his untiring energy, viz., that of temperance—of which, indeed, for many years he was recognised as a pillar. Believing, with the late celebrated Richard Cobden, that "the temperance movement lies at the foundation of all political and social reform," he consistently advocated both personal abstinence from intoxicating drinks and the legislative suppression of the liquor traffic. He was a vice-president of both the Scottish Permissive Bill Association and of the United Kingdom Alliance, whose meetings he frequently addressed, holding his audiences spellbound by the clear and forcible expression of his views, his

fund of anecdote and eloquence, as well as by the laughter-provoking sallies of his wit. In Manchester, where, in the Free Trade Hall, some years ago, his amusing speeches were much appreciated, they earned for him the sobriquet of "the funny Scotch doctor."

In 1857 he accepted an invitation to address the Edinburgh students for the purpose of refuting Professor Laycock's defence of alcoholic liquors; and this was the occasion, to say the least of it, of some very lively meetings in this city. He also delivered a lecture in 1860 to the students of the Glasgow University on "The Temperance Reformation from a Medical Point of View," which was afterwards printed, and went through several editions.

But it was as a politician that Dr M'Culloch's powers had greatest play. A Liberal of the Liberals, he took part in all the contests of the day, and more especially those affecting the Dumfries burghs, where he swayed the chances of more than one election, and where his most pronounced views were uttered with all the ardour of intense conviction, and where also the keen weapons of his satire were launched remorselessly at his opponents. Nevertheless patriotism was to him a far higher faith than party, and thus on more than one occasion he sank, for the time being, every other political consideration for what he held to be the paramount necessity of temperance legislation; while more recently, with the courage of his convictions, he spoke from a Conservative platform and voted for a Tory rather than endanger the Union, as he believed, by following Mr Gladstone in his Irish Home Rule policy. Few men, perhaps, of the doctor's combative disposition have succeeded in gaining the admiration and even affection of his opponents as he did. It was felt that self-interest and time-serving had no part in his designs, and though quick-tempered and fiery in denunciation, it was nevertheless evident to those who knew him that his irascibility, like a prickly bramble, but barely concealed the pure fount of gentlest emotion.

As a friend and medical adviser, no man was ever more trusted and beloved. In illustration of which it may be mentioned that, in the winter of 1859-60, Dr M'Culloch's patients and others united in a very special and exceptional way to do him honour. His lady patients first combined to present him with a handsome carriage and horse, or horses, accompanied by an address endorsed on vellum, giving him in glowing terms the reason of their confidence and admiration.

Scarcely had the *eclat* and excitement of the brilliant soiree at which this took place subsided, when it was followed by another, even more crowded, and given by the working men and women of Dumfries and Maxwelltown, at which both Dr and Mrs M'Culloch were presented with handsome and useful gifts, and also with a similar address, couched in terms of loving esteem and gratitude. A third and almost equally gratifying address being at the same time presented from the medical practitioners of the south of Scotland, setting forth their high appreciation of Dr M'Culloch's character, and of "his kind and courteous conduct towards his

professional brethren." To this document was appended the signatures of almost every medical man in the three counties.

An insatiable reader, it is also recorded of Dr M'Culloch that, when above 82 years of age, in order to judge for himself of the new rendering of the Scriptures, he set himself to read, from cover to cover, the whole of the revised edition of the Bible, a splendid copy of which had also been given him by a patient.

He had a mind singularly alive to new impressions, and kept ever abreast of the latest improvements and research in his profession, while he was equally familiar with science in other directions, and had a library containing the works of the most advanced thinkers of the day.

More than thirty years ago he was an accomplished electrician, and was wont to prophesy future developments for his favourite science, then little dreamt of, but which are now revolutionizing the *modus operandi* of our social and domestic systems.

Galvanism as a remedial agent might almost be called one of his hobbies, and he employed it with success for many years, owning for the purpose a valuable collection of the finest batteries.

He was also a skilled microscopist, and possessed a most splendid instrument for the purpose of conducting a class of investigations in which he peculiarly delighted.

A fearless searcher after truth, he accepted the opinions of no man or set of men in opposition to the conclusions of his own judgment, and occasionally shocked timid thinkers with the iconoclastic tendency of the latter! What is called "orthodox teaching he could not accept; yet, better than many a professing Christian, he practised the teaching of the spirit and many of the graces of true Christianity. *Nemo ergo judicet.*"

In a notice like this, to give anything like a correct idea of his unique personality has been felt a very difficult task, for he was truly a man of contrasts, his peculiar idiosyncrasy, as well as marked individuality of character, contributing much to the eventfulness of his history. Suffice it, therefore, to add, that amidst the community where Dr M'Culloch spent so large a portion of his life, and was so prominent a figure, there is now a very general feeling that they "will not look upon his like again."

DR ALEX. THOM, SENIOR, CRIEFF.

A. THOM, M.A. (Aberdeen), M.R.C.S. Eng., F.R.C.S. Ed., L.R.C.P.E., was a native of Banchory in Aberdeenshire. After taking the M.R.C.S., he went to Sydney in medical charge of a large number of emigrants, in which capacity he gave great satisfaction to the passengers and crew as well as to the owners, having had many difficulties and anxieties on account of the death of the captain of the vessel.

He practised for thirteen years in his native county, when his health having become somewhat impaired, he obtained the appoint-

ment of Surgeon to the Ross, Cromarty, Caithness, and Sutherland Rifle Militia, which he held for about five years, and was quartered at Fort George.

He was afterwards Physician to the Countess of Dunmore, and went to Crieff thirty-one years ago on the advice of Sir James Simpson, succeeding the late Dr Fairless.

He held very advanced views in sanitary matters, and delivered a very able address on house-drainage in his capacity of President of the Perthshire Medical Association.

Dr Thom, from the very beginning of his career in Crieff, took a deep interest in all matters associated with the prosperity and progress of the town, and was for some time an active member of the Town Council shortly after the town was made a burgh. Both professionally and otherwise, he did much to relieve and ameliorate the poor without fee or reward, and his interest in their social and sanitary condition was greater and more hearty than, we believe, he ever got credit for.

He had long been the subject of gout and chronic bronchitis with emphysema. In spring of last year he had a very severe attack of pleurisy and pneumonia, from which he never quite rallied, his heart being seriously damaged. During last summer he was able only partially to attend to his duties. During the last six or seven weeks of his life his heart rapidly degenerated, and he died somewhat suddenly after being confined to bed for nearly a fortnight. He died on Thursday, June 21st, 1888, in the 70th year of his age.

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Part First.

ORIGINAL COMMUNICATIONS.

I.—THE PHYSICIAN—A NATURALIST: A GRADUATION ADDRESS, DELIVERED AUGUST 1, 1888.

By Professor Sir WILLIAM TURNER, M.B., LL.D., F.R.S.

It is an old saying that every woman is beautiful on her wedding-day. Graduates! this is your wedding-day. After a courtship more or less prolonged in individual cases, all of you have been this morning tied by the vows of holy matrimony to the Alma Mater by whom you have been educated, as graduates and members of her General Council, and the great majority of you to medicine as a profession. But whilst the tie to your respective professions is so loose and elastic that you are perfectly free either to enter into their practice or not, as you may feel disposed, the bond which now binds you to the University is much more rigid and enduring. No divorce Act that I know of has as yet been framed to dissolve that intimate union which is set forth in the phrase, "that once a graduate, always a graduate." Let me express the wish that this union which we now celebrate may be long and happy and prosperous.

Gentlemen! You will henceforth regard this day as one of the most interesting in your lives. It marks a definite stage in your respective careers.

By the magic touch of the Chancellor's hand, you are no longer *in statu pupillari*, but you have been crowned, or rather "capped" with your degrees. Each one of you is now able to pursue his further career in that direction which may be most fitted to his talents and acquirements, and in that locality which may seem to offer the best field for work and usefulness.

But if this occasion is of supreme interest to all of you, it is not without significance to myself; for I have this year entered on my professorial majority, and am now completing my thirty-fourth year of work as a teacher of anatomy—a period of continuous service within the University which places me amongst the seniors, though I can by no means claim to be the oldest amongst my colleagues either in years or in professorial standing.

It is one of the privileges of seniority to indulge in reminiscences, and without perhaps exhibiting that failing of age which is

termed garrulousness, one might find interesting material for a graduation address in speaking of the men who most largely filled the public eye in the Medical Faculty in this University when I entered it as a young teacher—in contrasting the University life and government of that day with the present, and the methods of medical education and practice then in vogue with those that now prevail.

The professors in the Faculty of Medicine at the time to which I refer were a remarkable body of men. With scarcely an exception, each was a leader in the subject which he professed. They possessed marked individuality and force of character, as well as high professional attainments. They sustained and strengthened the reputation of the University as a school of medicine, and the majority gained for themselves a permanent place in the history of their profession.

They have all departed and been succeeded by a younger generation; but amongst their immediate successors not a few have also gone from amongst us. Only a few months ago we had to mourn the loss of Alexander Dickson, who was suddenly taken when in the full tide of his professional career, and with, to all appearance, many years of life and work before him. He will abide in the recollection of his pupils and colleagues both as a distinguished botanist and as a truly good man.

I have witnessed most important changes in the constitution and government of the University.

My official connexion with it goes back to the time when the municipality of the city controlled and managed the affairs and exercised the bulk of the patronage. Under its auspices, and sustained by the guidance and accumulated reputations of several generations of eminent men who filled in succession the chairs in the several Faculties, what was originally only the town's college grew to be a great and world-renowned University. With the progress, however, of letters and science, with the ever-increasing specialization in educational systems and methods, with the not unfrequent want of harmonious co-operation between the administrative and educational bodies, it was felt, by an almost universal consent of opinion, that the time had come when the University should no longer be ruled by a non-academic body, and that a change in the method of government had become necessary. Accordingly, an Act was passed in 1858 by the Lord Advocate of the day, now our distinguished Chancellor, which remodelled the whole constitution, and amongst other things entrusted the administration of the property and revenues of the University, and the superintendence and regulation of the teaching and discipline, to the academic body, subject to the control and review of the University Court.

The thirty years that have elapsed since this Act came into operation have witnessed a marvellous progress and expansion in the material resources of the University, in the increase in the edu-

cational staff, and in the number of students. The new statutes that were framed by the University Commissioners, and the machinery that was provided for modifying these statutes as occasion arose, have enabled the administrative and educational bodies, both of this and the other Scottish Universities, to provide in a great many particulars for the growing requirements of the nation. The statesmanlike character of the Act of 1858, and the patience, sagacity, and forethought which guided the Universities Commissioners in framing their ordinances, have placed our Chancellor in the highest rank amidst the benefactors of education in Scotland.

Experience, however, has shown that in certain directions an enlargement of powers and an increase of resources are necessary, in order to make changes which could not efficiently be carried out under the Act of 1858. For several years past the authorities of the Scottish Universities have urged upon the Government of the day the importance of passing an Act to enable these changes to be effected. Although several Bills have been prepared, none has yet become law. The Bill introduced early in this session of Parliament has passed through the House of Lords, but to all appearance it does not seem as if, for the present at least, it is to make further progress.

This Bill proposes to entrust to an executive commission large powers to alter the existing arrangements affecting the curricula of study, the requirements for graduation, the endowments of the Universities, and to found new professorships and lectureships. But, further, it is proposed to transfer the administration of the property and revenues of each university from the *Senatus Academicus* to an enlarged University Court, the members of which are to be chosen in part by academic, in part by non-academic persons. Until some definite legislation takes place, University education in Scotland will remain in an unsettled condition. But whatever form the Act may take, I would express the wish that it may exercise as great an influence for good over the generation whose education it is to regulate as the Act of 1858 has done over that which is now passing away.

The change which has taken place in the methods of medical education during the last thirty or forty years has been most marked, and in no school of medicine probably has this been more strikingly shown than in our own. When I first became connected with it, the only subjects in which practical instruction was imparted—in which the student was required himself to experiment or observe—were botany, chemistry, and anatomy, with of course the practical training pursued in the Royal Infirmary. The great bulk of the teaching was by means of formal lectures, with occasional demonstrations of specimens by the teacher. Each subject, therefore, derived its interest, not so much from its own intrinsic merits, as from the descriptive power of the professor, and

the force with which he threw his own personality into his teaching. How different is the state of matters now! Every branch of medical education has its practical department, and the student is required to do something more than sit and listen, and exercise his memory; and he is called upon to test the accuracy of what his teacher tells him by his own observations.

It was the strong conviction of the necessity of developing this aspect of medical education that led the Senate of the University some eighteen years ago to direct public attention to the inadequacy of the accommodation in the then buildings of the University for the work which was required to be done. In consequence a committee was formed consisting partly of University professors, and partly of other public spirited citizens, which under the guiding hand of our late Principal, Sir Alexander Grant, appealed for assistance to the public and the Government. This appeal was so liberally responded to that in a few years' time the noble group of buildings in Teviot Row, in which you have received your education, was erected.

In making this reference to the buildings of the University, I would further add that the time is rapidly approaching when, through the splendid munificence of one of our citizens, the University will no longer require to hold so important a function as that which we are this day discharging outside her own walls. The site is rapidly being cleared, and the foundations are now being dug for the erection of a stately Academic Hall, to be presented by Mr M'Ewan, M.P., to the University, in which the graduation and all other public ceremonials will be conducted, and which, when built, will complete the design of the new buildings of the University.

The University is now provided with a completeness of accommodation and equipment for the teaching of medicine and of the sciences on which it is based second to no other institution in the United Kingdom. I have sometimes heard it stated that in Edinburgh medical education is not of a practical, but of a largely theoretical character. I quite admit that if by a practical training is meant that rule of thumb method, which prescribes a particular drug or formula for the treatment of a given disease, altogether irrespective of its causation or the stage of the disorder, the constitutional peculiarities of the patient, and other modifying circumstances, then the Edinburgh training does not come up to that standard. But if an education based upon the consideration and discussion of principles, and with ample opportunities and means of illustrating those principles by constant reference to facts and phenomena, be a proper training for the profession of medicine,—and who with any insight will doubt its suitability,—then I say the education imparted in Edinburgh is in the highest sense of a practical character.

But along with the improvements in the methods of medical

education, there had also been marked progress in diagnosis and treatment, in our knowledge of the causation of disease, and in the preventive measures which are to be adopted to check its spread amongst the community. Indeed, one may say that almost the whole science and organization of what is now called preventive medicine dates back no further than forty years. In curative medicine, also, great strides have been made. The surgeon has had for centuries no lack of knives and saws and other instruments for producing what is customary to call "solutions of continuity," but until comparatively recently, he had no means of rendering his patient insensible to the pain which the use of these instruments occasioned. The discovery by Morton, an American dentist, in 1846, the year in which I entered the profession as a surgeon's apprentice, of the anæsthetic properties of sulphuric ether inaugurated a new era. I recollect, as if it were yesterday, the first capital operation that I saw which was done under the influence of ether, the year following its introduction as an anæsthetic. At the end of 1847, the use of chloroform instead of sulphuric ether was advocated by Professor Sir J. Y. Simpson, and with the marvellous energy which characterized that very remarkable man its virtues soon became known throughout the world.

Most valuable advances have also been made in the treatment of wounds. The importance of cleanliness and of simplicity in the dressing of wounds had been insisted on by Robert Liston, the greatest operating surgeon of his day. The employment by Marion Sims of metallic, instead of silk sutures for bringing into apposition the edges of wounds, was also a great improvement in practice. But that which more especially marks our generation in this direction is the introduction and elaboration of that method of practice which, under the name of antiseptic surgery, we owe to the genius of Joseph Lister. It will ever redound to the glory of the medical school in this city, that the introduction of chloroform as an anæsthetic, and the development of the principles and methods of antiseptic surgery, are due to two men who at one time occupied chairs in the Faculty of Medicine in the University. By their discoveries a security has been imparted to surgical practice which it had not before possessed. Along with the growth of the feeling of comparative safety in the mind of the surgeon, there has arisen an improvement in methods of operating in the instruments employed. Surgeons now have no hesitation in performing operations of the greatest magnitude in such regions as the abdomen, the cranial cavity, the thorax, and the joints, which twenty or thirty years ago were *tabu* to the use of the knife.

But I would not have you to suppose that the progress in curative medicine has been limited to the surgical branch of our profession. The principles on which antiseptic surgery is based,

that morbid processes are associated with the presence of living germs, have been applied to the investigation of the production of internal diseases both in man and animals, and there has arisen during the last twelve to fifteen years that new department of study called bacteriological medicine, with the rise and progress of which the name of Pasteur will be imperishably connected. Although still in its infancy, important results have already been obtained, and with continued research more may be expected to follow. I am glad to state that in more than one department in our University interesting bacteriological researches have been conducted, or are still under inquiry.

The past forty years have witnessed great advances also in the methods of medical diagnosis, and in the instruments which are employed. At the beginning of that period the stethoscope had become firmly established as an aid to diagnosis; but the microscope was almost limited in its use to the recognition of the characters of urinary deposits, or to the discrimination of morbid growths, with in many cases only a half-hearted belief in its efficacy. It is true that the blood was examined microscopically in disease to determine the relative proportions of the red and white corpuscles, but the methods of obtaining precise information on the number of corpuscles in a given quantity of blood, and consequently their increase or diminution in the entire mass of the blood in certain morbid conditions, had not been discovered. The condition of the pulse was tested by the finger, but the sphygmograph as an instrument of clinical research was unknown. The thermometer had scarcely been used in clinical observation. The ophthalmoscope, laryngoscope, endoscope, and other instruments now so extensively used for examining the interior of the tubes and chambers of the living body, had either not been invented, or were very imperfect. The clinical examination of the urine was almost entirely confined to the testing for albumen and sugar.

Enormous strides have also been made in acquiring a correct knowledge of the physiological action of drugs and of their therapeutical applications. Time does not permit me to enter into details on this head, but I ought not to omit to state that much of the progress in this direction has been due to the researches of some of your teachers and of my colleagues.

In contributing to the progress of medicine, the Edinburgh school has taken an active and, in many branches of study and practice, a leading part. If a research fund were provided from which such of the many able young men, who, year by year, graduate in medicine and who have an aptitude for conducting investigations, could obtain assistance in the supply of the necessary apparatus and material, as well as in some measure to recompense them for the time to be devoted to original inquiry, then contributions from this school to medical science would be largely increased. As the University is now so well provided with

educational buildings in which research in the different branches of medical study can be conducted, it is for the consideration of those who may be disposed to make benefactions to it whether, in the disposal of their means, much good would not accrue by the institution of a fund for the endowment of research.

To what are we to ascribe these advances in the *ars medica* to which I have been referring? Without doubt they are due to the application to medical diagnosis and practice of principles and methods of research similar to those which have been and are now employed with so much success in the biological and experimental sciences. As it has become more widely recognised that the processes of the economy are in conformity with physical laws, medical science and practice have lost their empirical character. Fact has been substituted for theory, positive knowledge for hypothesis, and the science of medicine has advanced *pari passu* with the progress which has been made in the sciences of observation and experiment.

The physician, therefore, is a naturalist, in the comprehensive sense of that term, and his special business is to study the natural phenomena exhibited by the human body both in the state of health and when disturbed and altered by disease.

For the purposes of our profession the power of exact observation ranks as one of the most precious gifts and endowments of the physician, and should be cultivated with the utmost care. Medical literature abounds with examples of erroneous inferences and conclusions based upon hasty and imperfect observation.

You cannot begin too early to train a child how to observe. A great defect in the system of education which prevails in so many schools is the want of attention paid to the cultivation of this faculty. The memory is exercised and strengthened, but the value of the eye as an educational instrument is too much ignored. I have frequently noticed, and a similar observation, I feel sure, has been made by my colleagues, that many young men who have entered on the study of medicine, bringing with them the reputation of having attained a high position at school or in the Arts Faculties of our Universities, do not, for a time at least, in their medical studies fulfil the expectations of their earlier career. Those qualities of mind which the successful study of medicine demands have been dormant, and they require much stimulation before they can be brought into active operation. On the other hand, it is not uncommon to find youths, whose school record was of a very ordinary character, display a marked ability for medical study and obtain high distinction in it.

Early in life I was impressed with the importance of cultivating the faculty of observation by reading a dialogue between a tutor and his pupil, entitled, "Eyes and no Eyes; or, The Art of Seeing," in which the important lesson was taught me that the art of seeing had a relation to the degree in which the attention was concentrated

on the object looked at, and the distinction between vacant gazing and intelligent observation was clearly pointed out.

Some persons are, indeed, gifted more than others with the power of rapid perception of objects. With every one I suppose things in which a special interest is taken are recognised and remembered much more readily than when they do not appeal to the sentiment or intelligence. How active, for instance, is that faculty of appreciative observation, intensified, without doubt, through its exercise in a particular direction during so many generations, which enables one of the opposite sex, almost at a glance, to discriminate the colour, texture, quality, fit, and, I have heard, even the value of the various articles of dress with which those of her own sex are appareled.

How the powers of observation may be strengthened and intensified is related by Robert Houdin, well known some thirty or forty years ago as a professor, not of the art of healing, but of second-sight and sleight-of-hand. In the profession which he followed with so much distinction and profit acuteness of observation and memory were of the utmost value, and he tells us in his autobiography how these were cultivated. His father used to walk with him along the streets of Paris and stop suddenly in front of a shop window in which numerous articles were displayed. The boy was then required to concentrate his attention for a minute on the objects, and, on his eyes being withdrawn, to tell his father what they were and how they were arranged. With the frequent repetition of this practice, the boy's sense of vision became so acute that a moment's glance in passing enabled him to recognise, and then to describe with accuracy, what the window contained.

But with all one's care and attention, one is constantly impressed with the difficulty of seeing objects completely and correctly. It has been the business of my life to observe and to put the results of my observations into definite language. And yet how often one has failed to recognise characters in the structures one has been examining! It may have been, perhaps, through some preconceived theory possessing one's mind, or through the attention being so concentrated on one particular aspect of an object, that others equally or even more important were overlooked. And on returning, perhaps, after an interval to the examination of the same thing, with the mind no longer pre-occupied, one has been amazed at having previously omitted to recognise some character which now appears most obvious.

Listen to what one of the greatest physicians of the last century, Dr William Hunter, wrote to a young practitioner, destined afterwards to become, as Professor Wm. Cullen, one of the most renowned teachers of his time in this University. Hunter was relating to his correspondent that he was engaged in the preparation of a compendious *System of Anatomy and Physiology*, and exclaims, "But, good heavens! what pains is required to do anything with

tolerable accuracy! Have you not found it so, for you have been employed much in the same way?"

But long before these truths came within the range of one's own, or, indeed, of any modern experience, they were expressed in few but pointed words by one of the greatest, if not the greatest, of the prophets—"Seeing many things, but thou observest not." And again by another of almost equal weight and authority, "Hear now this, O foolish people, and without understanding; which have eyes, and see not; which have ears, and hear not."

To make full use of what you see you must combine with the observing eye the reflecting mind. The facts and phenomena which you have to examine must be pondered over; their causation, relations, and dependence on each other must be inquired into. You have, in short, to obtain an "understanding" of them before you can draw legitimate conclusions, and benefit both your patients and medical science.

I know no book that exhibits in a more striking form the combination of careful observation and experiment with close reflection than the small volume entitled, *De motu Cordis et Sanguinis*, which its author modestly called a tractate, and the writing of which revolutionized physiology and medicine, and placed the name of William Harvey amongst the immortals. Although published one hundred and sixty years ago, and probably written before, though not actually published until eight years after the appearance of the *Novum Organum*, it will ever remain a monument of inductive reasoning and a model for all investigators.

The aid which medical science derives from the study of the lower animals is clearly set forth in Harvey's treatise, and is admitted by all who wish to see a medical education based upon something more than the narrowest technical foundation. The study of plants also, though perhaps in a less degree, is a most useful feature in the preliminary training in medicine. True it is that your vocation in life is not to doctor starfishes or snails, or even dogs and rabbits; nor is the modern practitioner of medicine required, like a certain apothecary of old, famous in poetry and the drama, to be "culling of simples." But the study both of plants and animals widens our knowledge of structure and of the processes of life, and both exercises and sharpens our powers of observation and comparison. Not long ago I was talking with my old teacher, Sir James Paget, about a little book, *On the Natural History of Yarmouth*, in which I was interested at the time, and in which he, when little more than a boy, had written a description of the fauna and flora of that town and the neighbourhood. In the course of our conversation, he spoke of the examination of the plants and animals, and the comparison of the different species, so as to arrange them in their proper classes required in the production of that work, as having been a most valuable preliminary training in fitting him to observe and discriminate disease. I could not give you higher testimony.

But along with a general training in these sciences of observation, important benefits are derived from the study of such experimental sciences as physics and chemistry, not only as aids in the cultivation of the mind, and in widening our knowledge of nature, but in their special application to the anatomy and physiology of man to practical medicine and to sanitation. Although it has so happened that my lot in life has been cast on other lines than that of practice, I would here acknowledge the insight which my early master had of the need of a scientific foundation in medical training, for in the first year of my apprenticeship he required me to study both botany and practical chemistry.

But we must not dwell too exclusively on the intellectual aspect of your professional training, though that of course is of the highest moment. Our profession, also, has a moral side of supreme importance to ourselves, our patients, our professional brethren, and the community amidst which we live. The contemplation of the particular aspect of Nature which the physician has to study ought to exercise an elevating and, at the same time, a softening influence on his character.

What says he who, more perhaps than any other writer, has given poetic form to Nature in so many of her aspects?

“Go, demand
Of mighty Nature, if ’twas ever meant
That we should pry far off, yet be unraised.
That we should pore and dwindle as we pore?”

Or again,

“Who thinks and feels,
And recognises ever and anon,
The breeze of Nature stirring in his soul,
Why need such men go desperately astray?”

Many of you, doubtless, recollect the old Greek fable of Antæus, the son of Poseidon, a giant and mighty wrestler, whose strength was invincible so long as his feet touched his mother earth, by contact with which, in his numerous encounters, he was refreshed and re-invigorated. You, in your wrestlings and strivings with disease, will gather strength for the conflict so long as your trust is placed in the laws and principles which regulate the construction and functions of the human body, and recognise and understand the disturbing causes which produce those modifications in structure and functions which we call disease. Should you cease to place trust in Nature’s laws, and rely on some visionary hypothesis or alluring dogma, which, for the time, may be attracting attention and perhaps obtaining converts, you will, I fear, meet with the fate which Antæus experienced at the hands of Hercules, who, on ascertaining the secret of his strength, lifted him from the earth and crushed him in the air.

By the contemplation of Nature in disease, the physician becomes inspired with a desire to penetrate the mysteries of life and organi-

zation; to get as far as possible behind the veil; to remove the healing art from the domain of conjecture and hypothesis, and plant it on the firm ground of science, *i.e.*, of positive knowledge. With such an ideal before him the physician's own character will become strengthened and purified.

But, further, the practice of your profession has an eminently humanizing influence. It leads you to become conversant with grief and sorrow, often in their most heartrending aspects. It leads you to sympathize with the sick and suffering. At times it makes you a participator in the happiness of family life. But under all circumstances it should take you out of yourselves, and call forth what is good in your respective natures.

In your relations to your patient you are to regard him as something more than a collection of organs—a machine for doing physiological work. His vital frame exists for other purposes than to be “examined, powdered, searched, probed, vexed, and criticised.” It will at times exhibit phenomena other than those which are within the scope of the methods of physical research. Your patients are human beings endowed with a mighty capacity for experiencing pleasure and pain, joy and sorrow, anxieties, sentiments, feelings, and emotions. The human soul is—

“Of a thousand faculties composed,
And twice ten thousand interests.”

Do not put yourselves into the position of those philosophers who have been charged with prizing—

“This soul and the transcendent universe
No more than as a mirror that reflects
To proud self-love her own intelligence.”

As you grow in years and experience, and gain the confidence of the public, you will be consulted by persons with highly emotional natures, or perhaps by others in whom strong intellectual powers are lodged in a feeble frame, and will have to realize that the mind may dominate over the body. Your highest analytical skill and knowledge of human nature will be needed to unravel the complex phenomena which may be displayed, so that you may wisely advise as to the treatment to be adopted.

Apply yourselves, therefore, conscientiously to determine the malady from which your patient suffers, the causes which have produced it, and the means that are to be employed for its alleviation and removal. Give the best of your mind and skill, whatever these may be, to your patient, whether he be peer or peasant. If this be your guiding star in practice, then, when you commit mistakes,—and remember you are but human,—and your conduct is adversely, perhaps severely commented on by the patient, his relations, or by those candid friends, your professional brethren, you may take comfort in the thought that you had left no means untried which commended itself to your judgment and experience.

Let me on this point read a short and pertinent extract from the life of one of the greatest naturalists of our generation, and, indeed, of all time, Charles Darwin, who, in his deeply interesting autobiography, wrote as follows:—"Whenever I have found out I have blundered, or that my work has been imperfect, and when I have been contemptuously criticised, and even when I have been overpraised so that I have felt mortified, it has been my greatest comfort to say hundreds of times to myself that 'I have worked as hard and as well as I could, and no man can do more than that.'"

How different would be your reflections if you had not taken the trouble to master, or to try to master the nature of your patient's malady! If you had been careless in your attendance, and had not given due thought and consideration in the advice which you tendered, and in the treatment which you adopted. You would then cower under adverse criticism, and perhaps try to take refuge in some sophistical plea, in order to conceal or extenuate your fault. But no criticism from without would equal in its keenness or intensity that inward monitor which would charge you with the guilt of wrong-doing. Be honest, therefore, in your work, "not slothful in business, fervent in spirit, serving the Lord."

In your relations to your professional brethren cultivate a kindly feeling. As young practitioners, you will find the advantage of having an ally in your immediate neighbourhood to consult with in cases of difficulty; and although, if he be much senior to yourself, you may, with the egotism of youth and fresh from the most recent methods of the schools, be disposed to laugh at some of his opinions and methods of practice as old fashioned, yet if he be a man of intelligence and observation, you will gain much from his experience and from his knowledge of human nature.

Avoid as you would a poisonous serpent the habit of depreciating your brother practitioners, and of indulging in sneers at their expense. The effect on your own minds of such a practice will be most pernicious. It will lead you constantly to distort the truth, and whilst producing an inability to recognise what is good in your neighbour, will lead either directly or by inference to a perpetual laudation of yourself. Be assured that you will find it a hard enough task to avoid falling into errors, and to correct your own mistakes. Judge others therefore leniently, as you would wish yourselves to be judged.

To those of you who may be ambitious of acquiring high professional distinction, I would say, Be not avaricious of fame. The desire to monopolize the sole credit of some research or discovery has sometimes led a man to be unjust to other workers in the same field, to suppress a proper reference to what they have done, and has blurred and clouded an otherwise great reputation. Be assured that no important discovery ever originated full fledged in the brain of one man, as Pallas Athene is fabled to have

emerged from the brain of Zeus completely armoured and with a great shout. It has been built up slowly and laboriously by the work of cotemporaries, as well as of those who had gone before, until at last the man arose, who, with a fuller and keener insight, brought what had been done by others into harmony with his own work and completed the edifice. But he who carves and puts in place the capital, should not forget those who have dug the foundations and reared perhaps both the base and shaft of the column.

When you settle in a locality, the nature of your training will fit you to advise both as regards matters which concern the health of individuals, and those which affect the community as a whole. The range of your studies has been such as to make you educated gentlemen, as well as competent practitioners. It is incumbent upon you, in all your relations to those amongst whom you are about to dwell, to do credit to your University, and to uphold the honour of our profession.

It is customary, I believe, for those who address an audience in this hall to preface what they have got to say with a text. Let me reverse this order of things, and place my text at the end of my discourse, and summarize in pointed words from that Book, which one never opens without finding in it guidance and support, much that I have said to you on the intellectual and moral aspects of our profession, "Wisdom is the principal thing, therefore get wisdom, and with all thy getting get understanding;" and again, "Therefore, all things whatsoever ye would that men should do to you, do ye even so to them."

And now, gentlemen, I bid you farewell! On my own part and on behalf of my colleagues, I wish you all success in your respective careers. As is symbolized by the figure of vigorous youth, which is about to form the finial of the dome of our University, go forth, and bear the torch of knowledge throughout the world.

II.—CHRONIC TROPICAL DIARRHŒA.

By Sir J. FAYRER, K.C.S.I., LL.D., M.D., F.R.S.

IN the *Edinburgh Medical Journal* of August 1888, p. 169, it is recorded that, during the discussion of a paper on tropical malaria, by Dr Dods, Professor Grainger Stewart remarked that "there was a peculiar form of disease he had sometimes met with in old Anglo-Indians. They exhibited symptoms like those spoken of by Dr Dods in describing the diarrhœa with colourless discharges. This was a very distressing disease. He had seen the patient going on steadily from bad to worse, and ultimately dying. The case looked somewhat like pernicious anæmia, the blood deteriorating in a marked manner, but the cause was evidently the constant diarrhœa. Three

or four times a day a white creamy material was discharged, sometimes frothy, sometimes not, but evidently deficient in bile. He remembered one patient improving under large doses of bismuth and careful regulation of diet, but in the end he went wrong; and he (Professor Stewart) had never yet been able to save a case of this kind." He further wished to ask Dr Dods whether such cases (as well as others of a different character) were of frequent occurrence in malarious regions?

To this Dr Dods replied that "this diarrhœa of which Professor Stewart had spoken was generally associated with atrophy of the liver; he had never seen a case recover."

Professor Stewart's admirable description in few words apparently refers to a form of tropical disease—the chronic white diarrhœa, diarrhœa alba, of India, China, Ceylon, and other tropical regions, unhappily of frequent occurrence among Europeans, but which, if dealt with promptly, before it is too far advanced, is amenable enough to treatment. Having for many years seen a good deal of this disease in all its stages, I venture to offer a few remarks on it, especially as my experience has led me to a more favourable conclusion in respect of it than that recorded by Dr Dods and Professor Stewart. For more elaborate details of causes, pathology, and treatment, I would refer to my former communications, in which I have dealt with this subject at some length.¹

Twenty years ago I also regarded this as a very fatal disease; subsequent experience, however, has convinced me that it is not necessarily so grave as I then believed it to be, and that, if vigorously dealt with, it readily yields to treatment, recoveries being the rule rather than the exception. Chronic white diarrhœa is insidious and often slow in its progress, but surely wasting in its effects, and if protracted beyond a certain stage, apt to prove fatal, owing to irreparable degeneration of the intestinal mucous surface and glands, and the consequent inability to absorb nutriment. Death results from inanition and exhaustion. Although often the sequel, it is not necessarily the consequence of any specific form of tropical disease; but it will generally be found that the health of the sufferer has been enfeebled by long residence in the tropics, and that he has become susceptible of cold and damp and of all atmospheric changes. He may be suffering from climatic cachexia, attended with hepatic or splenic derangement or portal congestion, and liable to intermitting attacks of diarrhœa, which may ultimately degenerate into the chronic form now under consideration. Such cases are often obstinate enough, but if unattended by structural

¹ "Chronic Diarrhœa of India and the Tropics," *Lancet*, Sept. 16, 1876, "On the Bael Fruit; its Medicinal Properties and Uses," *Med. Times and Gazette*, 1878. *Chronic Diarrhœa and Dysentery in Persons Returned from Tropical to Temperate Climates*, by Sir J. Fayrer and Dr J. Ewart, B.M.S.; paper read at International Congress at Copenhagen, Aug. 1884. "Clinical Lecture on Tropical Diarrhœa," *Brit. Med. Journal*, May 30, 1884.

changes in the viscera, generally do well after the portal system has been relieved by the aid of saline laxatives with careful, well-regulated diet and due attention to warmth and change of climate.

Chronic diarrhœa alba, white flux, or sprue, as it is called in China, has been described by Annesley, Twining, Martin, A. Grant, myself, Manson, E. Goodeve, and others. One common form of it is known in India as hill diarrhœa, because it is apt to affect the residents of the hill stations, where atmospheric conditions, and probably to some extent the drinking water, are instrumental in producing it in persons who have previously endured the debilitating influences of life in the plains, albeit it occurs in some who do not appear to have so suffered. It is, I think, to be regarded as a true climatic disease, though no obvious indication of cachexia may have preceded it, and though its etiological relations with malaria are rather secondary than direct.

Most of the cases seen in this country occur in persons who have been sent home on account of it, though in a certain number it makes its first appearance after the sufferer has returned to Europe. Though occasionally a sequel also of chronic dysentery, white diarrhœa frequently commences with simple looseness of the bowels, attended by little or no pain, the action producing rather a sense of relief than of suffering. The general health and appetite appear good, and not until the patient finds that he is rapidly losing flesh, strength, and energy, does he realize the serious character of his complaint. The appearance of the dejecta is suggestive of deficiency of bile, for they are colourless, almost white; but this may be accounted for by the general condition of anæmia, rather than by any specific disease of the liver, for it is only as the disease advances that the pale, frothy appearance of the excreta becomes so marked. The balance between exhalation and absorption seems to be disturbed, and much of the fluid, which in the natural osmotic circulation of intestinal fluid would be reabsorbed, is carried off, whilst atrophy and degeneration result, as may be seen in the attenuated frames and wasted viscera of those who succumb.

The appearance of persons suffering from this disease is characteristic. They are pale, emaciated, with loose, dry, flaccid, flabby skin, which in the later stages becomes discoloured as by chloasma or Addison's disease. The fat disappears; the eyes are pearly, sunken; the lips and conjunctiva blanched; the tongue is dry, smooth, red, contracted and glazed, the papillæ are obliterated, and in advanced stages the organ is shrunken and contracted, whilst it is so tender as to be intolerant of wine, or anything salt, pungent, or stimulating. The lips, tongue, and mucous membrane of the mouth are sometimes the seat of painful aphthous ulceration, and in extreme cases a thick coating of white epithelial scales load the tongue and buccal mucous membrane. The condition of the tongue is significant of the stage of the disease, and is the surest

indication of its progress. A tendency to return to the normal state of the papillæ is one of the most hopeful signs of improvement and prospective recovery, whilst glazing and redness are of evil augury.

In the earlier stages of the disease the evidences of malarial action are occasionally manifested by slight recurrence of fever, neuralgia, myalgia, or other vague condition of disorder, and malaise common to those who have been subjected to malarial influences. Dyspepsia, with flatulent distension of the stomach and bowels, which themselves are irritable, and provoked to action by the ingestion of any food, however simple, general languor, with physical and mental inertia and debility, increase until any exertion is as difficult as it is distasteful, the disease all the time steadily progressing.

These symptoms may be to a great extent mitigated by treatment; the patient feels better, he has an appetite, and he feels relieved by the action of the bowels; but the disease is progressing all the time, the strength fails, the wasting increases, and sooner or later he finds himself compelled to give up work and seek recovery in change of climate. Should this not prove effective, the symptoms go on increasing in gravity; he rapidly loses flesh, is easily exhausted, the breathing becomes feeble and accelerated, the temperature sub-normal, the urine albuminous, the extremities œdematous, anæmia is profound, the evacuations are white, fluid, frothy, passed with little pain, occasionally tinged with blood or mucus. If this evil condition be not arrested, and I fear it seldom is when it has gone thus far, fatal exhaustion soon closes the scene!

This disease appears to be the consequence of general degeneration of all, rather than a specific disease of any one organ. Anæmia and exhaustion, the result of imperfect absorption and assimilation, and wasting of the nutrient material, are the marked indications during life, whilst examination of the bodies of those who have succumbed show that the wasting which is so marked in the body generally has extended to the viscera themselves. When death has occurred at an early period from some intercurrent disease, the intestines are found contracted, with the mucous lining thickened and congested, even ulcerated, but when death has occurred later, the coats of the bowel are found to be attenuated and diaphanous, the seat of fatty or lardaceous degeneration, with—not unfrequently—ulceration in the ileum or colon. The intestinal glandular structures and mesenteric glands are found atrophied and degenerated, the latter sometimes enlarged, the mesentery itself wasted, the liver shrunk and pale, contracted so much as in life to give rise to the belief that it is atrophied; the spleen and kidney may be in a similar condition. In some there may be enlargement of the liver or spleen, or of both, but in ordinary cases of the disease there is no such complication. It has long been

thought that the disease is associated with chronic disease of the liver; even now I see cases which are reported to be atrophy of the liver with the diarrhœa, but the atrophy disappears as the diarrhœa ceases and restoration to health is established. Annesley, Twining, Martin, Grant, Goodeve, and others, have pointed out its connexion with certain visceral changes. Post-mortem examinations have demonstrated the attenuated, blanched, and atrophied state of the mucous membrane and follicles. E. Goodeve showed how they were sometimes found in a state of amyloid degeneration, as I also pointed out in a paper written many years ago. Goodeve says, that in young persons dying of inflammatory diarrhœa, there may be swelling of the follicles and Peyer's patches, whilst in the chronic forms there is not much surface change, but there is thinning of all the coats of the small intestines so that they become translucent, and there is atrophy of the glandular tissues. When the patients have had dysenteric symptoms towards the close of life, ulceration or sloughing of portions of the colon may be found. The liver is not necessarily altered, but it has been found flaccid, anæmic, and small, but without any other morbid change.

From the insidious character of the early stages of chronic diarrhœa, it not unfrequently happens that it gains ground before radical measures are resorted to for its relief. The voyage to Europe, however, in those who come from abroad has been an important step in the right direction, and some improvement may already have taken place, but much remains to be done!

The successful treatment of this form of diarrhœa depends very much on the patient's resolution, and perseverance in carrying out the instructions he receives. Diet is a most important element, and this must be very strictly regulated. Scarcely less important are the questions of clothing, habits, and mode of life.

The object is to avoid alternations of temperature, errors of diet, and fatigue or excitement, whether mental or physical, to procure for the patient a state of physiological rest. The tendency of chronic diarrhœa, if not too far advanced, is to get well; our object is to favour that tendency, and not to thwart it by well-meant, but questionable administration of drugs or unsuitable food.

All irritating food must be avoided. *Milk alone* (cow's milk) which in some rare cases may be diluted with a third or fourth of plain water, or lime water, *should be the only food*, and it must be given in small quantities often repeated, say from four to six ounces every hour. By the time the patient is taking two to three quarts of milk in the twenty-four hours, he will find that he obtains from it all the nourishment not only necessary to support his strength, but to enable him to recover from the disease.

I commenced this mode of treatment before I returned to England in 1872, and after prolonged experience I find that milk alone is most effective. It needs no addition, and seldom fails to

do the good which is expected from it. At first the patient may lose weight, but soon regains and increases it. In ordinary cases it is necessary to adhere to the milk diet for three weeks to a month or six weeks, after which period a more varied diet may be given, though any change or addition must be made gradually and tentatively, with great care.

Beef-tea, raw beef juice, or other animal broth, finely minced meat if not previously cooked, a raw egg beaten up with milk, may be tried, but in the early stages seldom if ever agree. Before I adopted the milk, raw beef juice was frequently tried, but it always failed. Farinaceous food is equally uncertain, and experience proves that milk *alone* is the best food. If carefully and judiciously given it not only replaces all other food, but dispenses with the necessity for drugs. Tea and coffee, as a general rule, disagree and should be avoided. Stimulants for those who have long been accustomed to them may cautiously be allowed in limited quantities. The best are brandy or whisky with the milk, or diluted with some alkaline water, such as Vichy or Vals. As a general rule, all wines are unsuitable.

The return to ordinary diet during convalescence must be very gradual. Regularity in the times of administering and of the quantity of the nourishment is most essential. The greatest care should be taken not to give too much of anything at a time (this equally applies to milk), and at once to discontinue anything that may appear to disagree.

It is necessary that the patient should be kept warm and at an equable temperature day and night. The body should be covered with flannel or woollen material next the skin, and a flannel bandage should surround the abdomen. Chills and damp are carefully to be avoided, for exposure to them may seriously aggravate the mischief. During cold or damp weather the patient should not leave the house. Rest in the recumbent posture is most desirable, and great part of the day should be spent in that position. As the condition improves, the state of the tongue is the best indication of progress towards recovery; the red glazed appearance is replaced by the gradual reappearance of papillæ, and the organ returns to its normal size. The discipline may then be relaxed, and the patient may be allowed to go out and take moderate exercise. It is well that he should reside in some mild, sheltered part of the country, such as on the south coast of England, but the care, comfort, attention, nursing, and diet of a comfortable home are of more importance than any change of locality where these might be wanting.

As the diarrhoea decreases, the excreta improve, the dejections diminish in frequency, but under milk diet are always copious in quantity, occurring once or twice in the day, semi-solid or pultaceous, gradually increasing in consistency until constipation may require enemata or slight laxatives. The excreta having gradually resumed the normal colour and appearance, the diet may be more

varied; farinaceous and animal food may be given very cautiously until by degrees the natural diet is resumed. But for long after recovery is apparently complete, the greatest care must be taken to avoid errors of diet, over-fatigue, or exposure to vicissitudes of temperature, lest a relapse should take place. It is desirable that the stay in Europe should be prolonged beyond one hot season at least, and it may be necessary to defer return to India or other tropical climate for another year.

Drugs are of little use, especially if strict dietetic and hygienic rules be unobserved. Under the impression that the liver is mainly at fault, it is sometimes deemed expedient to administer cholagogue remedies. This, I think, is unnecessary. The chief indication is to restore the healthy action of the bowel by giving it *rest*, by promoting absorption and delaying the expulsion of its contents. This we may best effect by giving only the blandest and least irritating forms of aliment (I know of none so good as milk, but when I find any better I shall adopt it), by the occasional use of remedies which allay irritability of the bowel, and, in due time, such as may tend to improve the general health.

In the earlier stages of the disease, when there is hepatic or portal congestion, ipecacuanha in 10 to 15 grain doses may prove beneficial. This, however, is quite inapplicable to its more advanced stages. In cases which are aggravated by continued portal congestion, benefit results rapidly after a few morning doses of a saline laxative. When the bowel is very irritable, with a tendency to frequent recurrence of watery evacuations, small doses of Dover's powder or tr. opii are useful. Bismuth is frequently prescribed, but apparently without any permanent benefit—indeed, it often does harm. Mucilaginous infusions, the fresh bael pulp, and other demulcent remedies, occasionally appear to do some good, but I have gradually abandoned them all in favour of milk. As recovery progresses, quinine and iron, especially the potas. tartrate, are beneficial, but they must be laid aside at once if they appear to disagree. Change to a milder climate, a visit to some of the Continental health resorts, may be of benefit, not so much for the waters,—though it is probable that some of the milder saline springs may be beneficial, especially where there is a tendency to hepatic or portal derangement,—as for that important element in recovering from many chronic diseases, *change*, and for a regulated and physiologically correct life, with the tone imparted by the mental attitude of determination to do all that can conduce to complete restoration to health.

In conclusion, I would remark that the prognosis in tropical diarrhœa depends on the stage which the disease has reached, the age of the patient, and the extent to which degenerative changes have gone on. I have frequently seen cases in persons between 20 and 50, or even older, in which the disease had continued for periods even up to two years, and in which the emaciation was

extreme, the legs œdematous, the urine albuminous, the tongue and mouth dry, shrunken, and red, recover rapidly and satisfactorily under the regimen I have described. Other cases occurring in more advanced age, of longer duration, or after frequent relapses of the disease, or complicated with the presence of visceral disease, obstinately resist all treatment, though even in them a certain measure of relief may be obtained; and I have nearly always found that when milk failed, it did so because it had either not been adhered to, or it had been mixed with other food, or had been taken in too large quantities at a time.

I trust these remarks may prove of interest, and that they may meet with the approval of the distinguished Professor of Medicine to whose query they are, in some measure, a reply.

III.—TRACHEOTOMY IN CHILDREN, WHY UNSUCCESSFUL?

By ALEXANDER THOM, M.D., C.M., Crieff.

(Read before the Medico-Chirurgical Society of Edinburgh, 4th July 1888.)

SEVEN times in the course of my work as a general practitioner have I performed the operation of tracheotomy, as a last resource, for obstruction of the larynx due to disease in children, and although the immediate result was entirely satisfactory, in every single instance the disease has proved fatal. I am well aware that it is not so usual for a member to bring before this Society a series of unsuccessful cases as the reverse, and perhaps I ought to apologise to the Society for venturing to bring before it a subject like tracheotomy, which in the eyes of the city members, at least, has possibly been discussed already *ad nauseam*. I find, however, that the question of tracheotomy in croup (to which disease my remarks and cases more particularly refer) is by no means a settled or defined one among general practitioners; and I find that in performing that operation, I am at variance with the practice of many excellent and experienced provincial general practitioners. Moreover, the earlier treatment of croup seems to me eminently unsatisfactory; and if I can elicit from the members any method of treatment which has been found really serviceable, and which is not to be found in our ordinary text-books and monographs, I feel that I may be pardoned for taking up your time. It would certainly be of infinite value to general practitioners, if we could relegate to tracheotomy its true place in the treatment of laryngeal obstruction in children from acute disease. A mere croupy cough from slight laryngitis is often called croup, and as often easily cured; but true membranous croup seems to me a very terrible and dire disease, and, indeed, my personal experience makes me stand more in awe of it than of diphtheria even, unless the latter is in an advanced stage and in an inaccessible region.

Moreover, the extraordinary interest manifested in the case of the late lamented Emperor of Germany has made the public so conversant with the operation of tracheotomy, that in order to hold our own in ordinary conversation on the subject, it is very necessary that we should have clear and well-defined views, and consequently the present appears to me a fit time for the examination of such.

Further, I have not forgot a remark made by a city member, when speaking to me privately regarding one of the papers by Dr Hunter of Linlithgow. It was to the effect that country members conferred on the Society a real service by bringing before it their difficulties. I am, therefore, emboldened to lay before you a real difficulty, but am very far from claiming for this short communication any such merit as was justly awarded to Dr Hunter's excellent papers.

In the following series of seven cases which extend over a period of ten years, I shall as briefly as possible mention the course of the disease before and after the performance of the operation.

CASE I.—A girl, aged 3 years, the patient of another practitioner—had been suffering from croupy cough and difficulty of breathing, with feverishness, for about a week, and had been under medical treatment during that time. Happening to live near I was called in. Finding the child almost pulseless and making only a few*gasping efforts to breathe, and learning that croup was the cause of it, I lost no time in opening the trachea. This was followed so far by relief; the child made one or two attempts to breathe and the pulse flickered, but as speedily sank again, and she died quietly in spite of artificial respiration persevered with for a considerable time.

CASE II.—A girl, aged $2\frac{1}{2}$ years, had been attended for several days by my late father for croup and bronchitis. In spite of the usual remedies the breathing got more and more embarrassed, there being great falling in of the supra-sternal notch and abdominal parietes and lower ribs on inspiration. Orders were left that we were to be summoned if any more marked difficulty of respiration occurred. This happened about four o'clock in the afternoon, when I opened the trachea in the usual way. The breathing immediately became almost natural, though cough from the bronchitis was rather troublesome. We rigged up a blanket tent, and kept the air moist by putting red hot bricks at intervals into a tub of water. Dr Hector M'Lean Wilson (now of Penrith, but then a medical student) kindly stayed most of the night beside her, and saw to the continuance of the treatment, and the child was extremely well next day. Towards evening, however, symptoms of lung congestion supervened, and the child died quietly thirty-six hours after the operation.

CASE III.—A lad of 9 years also occurred in the practice of my father, who had been attending him for some days for true croup. Symptoms of acute obstruction having supervened, I was called in late at night, with the object of giving mechanical relief if possible, the parents having at last given their consent. I at once performed tracheotomy with the usual precautions, and though all the light I had was from an ordinary candle, the operation was perfectly successful. Membrane and mucus were coughed up, and the tube having been inserted, the patient took nourishment readily and with relish, nodded and shook his head, and otherwise made signs in a perfectly natural manner. Next day his temperature was almost normal, and except for the fact that he was breathing through a tube he seemed perfectly well. The air was kept well moistened as before, and I felt almost certain that the case would end satisfactorily. In the evening, however, I was sent for in a hurry, and found him suffering from acute abdominal pain, which so far as could be made out, he localized about the right iliac fossa, but he was writhing and twisting about so much that nothing definite could be made out. His breathing was perfectly good. He was ordered a full dose of opium or morphia, which was to be repeated in an hour and a half if necessary. When I returned from the country about midnight, I found that he had just died breathing easily to the end, but suffering severe abdominal pain. Next day we made a post-mortem examination, and found a simply perfect example of recent invagination of the bowel, about 9 inches of the jejunum being invaginated. There was no obstruction whatever below the tube, and no extension of the membrane into the trachea.

CASE IV.—A lad, 10 years of age, living at a distance of eight miles, had been seen by myself for three days before any symptoms occurred of laryngeal obstruction. He had a slight cough, general malaise, and an ulcerated throat, with some sloughy patches which were suspiciously like diphtheria, and which I treated as such. They speedily disappeared, and the throat improved, but a croupy cough came on, and soon the breathing was embarrassed and difficult, and the usual signs of laryngeal obstruction supervened. Having explained to the parents what should be done as a last resource in the event of threatened suffocation, I was sent for, and arrived about 11 o'clock P.M. The lad was visibly sinking, the attempts at inspiration being seldom and fruitless, when, without any skilled assistance, and by an unsatisfactory lamp-light, I opened the trachea and inserted the canula. After persevering with artificial respiration for some time, I had the satisfaction of getting the breathing well established, and left him in the early morning wonderfully well. As I expected, however, he died in forty-eight hours from weakness and extension of the membrane into the trachea and bronchi. That the disease was true diphtheria was

proved by the fact that all the rest of the family—father, mother, and two brothers—were affected by it in the throat, some of them severely,—the father suffering for weeks afterwards from typical paralysis of arms and legs.

CASE V.—A girl, aged 3 years, occurred in the practice of Dr Steel of Comrie, who sent for me one forenoon. I found a very advanced diphtheritic condition of both tonsils, both sides of the uvula, all the fauces, and back of the pharynx. The larynx was just beginning to show symptoms of being invaded by the same disease, but not markedly so. We arranged to persevere with local and general remedies until any marked symptoms of laryngeal obstruction occurred.

In the evening I was summoned by telegram, and, aided by Dr Steel and Dr Arnot (then my assistant), I performed tracheotomy in the usual way, easily and without hæmorrhage. The breathing was soon most satisfactory, and the child relieved and of good colour, instead of being cyanosed. Within two days, however, the child sank in spite of remedies, and died partly from extension of the membrane and partly from syncope.

CASE VI.—A girl, aged 6 years, had been coughing croupily for two days before I was called, when I found well-marked symptoms of true croup—the supra-sternal notch, lower ribs, and upper abdominal parietes falling in on inspiration. I prescribed the usual remedies—emetics, stimulants, expectorants, and tonics in the form of perchloride of iron and chlorate of potash, watery vapour and lime-water atomized, and compound tincture of benzoin in the respired atmosphere. Finding no improvement, but rather visible retrogression, I advised operation, having explained the object and the prospect to be entertained; and at last, after the disease had lasted five days, sanction was given. I operated in a very bad light, the only assistance afforded being by my brother-in-law, an ambulance pupil of my own. The respiration was very feeble. I had to cut through a vein, which I could not avoid, and from which hæmorrhage (excessively dark-coloured) was profuse for a time. By means of pressure this was controlled until I had got the trachea opened, and the tube inserted without any blood getting into the windpipe. I then found that there was no attempt to respire; the pulse was gone, the heart had ceased, and there was no hæmorrhage. By means of artificial respiration the patient soon recovered, and got on exceedingly well all night. Much mucus was coughed up by the tube, and occasional shreds of membrane. Directions were given that the steam should be kept up and how to clear out the tube. For some reason or other, however the mother, with the best possible intention, left out the inner tube because the child seemed easier without it, and on the second night stopped the steam because she did not see it doing any good. This was followed by increased viscosity of the mucus and difficulty in

keeping the tube clear of mucus and pieces of the membrane. Death took place three days after the operation from obstruction of the tube and the trachea below the tube.

CASE VII.—A girl, aged 3 years, had suffered for nearly a week from whooping-cough and bronchitis, so perhaps I thought less of this last development than I might otherwise have done. Suddenly she developed symptoms of acute laryngeal obstruction, which, seeing that the parents were averse to operation, I tried to combat by the usual methods—emetics, expectorants, iron tonics, watery vapour with benzoin. When the child was evidently sinking, permission was given to do whatever I thought might give relief, even though it would not cure. At eight o'clock in the morning, and with the help of Dr Henry Robinson, my assistant, I performed tracheotomy with perfect success, so far as the immediate result was concerned, and a large piece of membrane was coughed out through the opening. The after-treatment could not have been better carried out. The respired air being kept well moistened by means of a bronchitis kettle, mucus was coughed up occasionally, nourishment was taken freely, and to all appearance the child was doing well. Towards afternoon, however, attacks of whooping-cough returned, and she died about midnight from syncope during a paroxysm of coughing. The tube and trachea were perfectly free.

Such, then, is a record of failure; and the question forces itself upon me,—“Am I justified, with such a record, in continuing to perform the operation as a last resource, or even as a temporary relief, to prevent death by suffocation?”

In order to answer this question it is necessary to inquire into the causes which render the operation unsuccessful. In the cases of diphtheria I did not look for anything but a fatal result at the time I operated. I do not pretend to discuss etiology, nor attempt to answer the vexed question regarding the identity, or otherwise, of croup and diphtheria. Whatever may be the opinion of pathologists, my experience leads me to make a clear distinction between them clinically. In diphtheria I think our course is plain, viz., treat the diphtheritic membrane by vigorously destroying it, keep up the patient's strength, and if symptoms of suffocation arise, open the trachea. This proceeding will, at least, allow of the more thorough application of remedies to the pharynx and upper part of the larynx. The early treatment of diphtheria is most important, and in my experience eminently successful. The early treatment of croup is also most important, but to be generally efficacious I think it leaves much to be desiderated. I have followed out carefully all the directions laid down in the best text-books, including Hilton Fagge's, our latest, and by Trousseau, perhaps our earliest good authority. I have never seen a case recover when it had reached the stage at which I performed tracheotomy; and I

may add that, including the tracheotomy cases, the fatality from croup is not greater, so far as I can make out, in my practice than in the practice of others. I have had very many successful cases of croup, or what I considered croup. At any rate, many cases have recovered which showed all the initial symptoms of croup. But since I have operated, and seen expectorated the immense piece of false membrane, I am forced to doubt whether any such membrane could have existed and disappeared by medicinal treatment or natural processes.

Presuming, then, that the early treatment was carried out in accordance with the approved methods, I ask—(1.) Does the fault lie in the unskilful performance of the operation? I readily grant that my experience in operating is not large, and very much less than that of most city general practitioners. It is, perhaps, less than it should be, for I find a great tendency nowadays among patients to go up to Edinburgh or Glasgow, or even London, for the performance of even minor operations. Whether this is due to the diffident modesty of country practitioners or the superior excellence of city surgeons I have not yet been able to form an opinion. Still, the operations which I have been allowed to perform have been in themselves uniformly successful, and these include several major amputations, several excisions of the breast and larger joints, removal of loose cartilage from the knee-joint, extraction of the lens for cataract, and operations for hare-lip. In the case of my tracheotomies I performed all the operations with care, deliberation, and comparative ease, and in only one case was there any considerable hæmorrhage. I am very far from saying that tracheotomy is an easy operation in children, or one to be performed without great care. When mentioning, in reference to the late Emperor of Germany, that tracheotomy in the adult is an easy operation, the *Lancet* laid great stress on the fact that in children it is very different. I admit this; in fact, I was sometimes dissecting quite in a hole before I reached, caught up, and opened the trachea. In every case after I had done so, however, and inserted the tube, the breathing soon became natural and, in all but the first, continued so for hours. When I remember Trousseau's statement, that tracheotomy badly performed but followed by good after-treatment is more likely to be successful than if the opposite condition obtain, I think I may without much egotism presume that the operation itself was not the cause of failure, and turn to the other factors.

(2.) Was the operation too long delayed? I believe in some of my cases it was. Had it been performed earlier I am of opinion that the patient would have had a better chance of recovery. In this connexion I cannot claim that the value of the operation can be properly judged of from my cases. Undoubtedly the majority of them were within a very short time of the fatal issue had I not operated. The delay was due, not to my own desire, but to the

reluctance of the parents and relatives to give their consent, and I felt that I was not justified in very strongly urging them to consent, seeing that I could not from my own experience hold out a very hopeful prospect.

(3.) Was the after-treatment imperfect? I regret to say that in many cases it was not what I could have desired, and even my own directions may not have been entirely in accordance with recent knowledge. Most of the cases occurred in families who could not afford to pay for a skilled nurse, and would undoubtedly have been removed to a hospital had one been within reach. Unless one has had experience of provincial or rather country practice it is difficult to understand how very badly off we are for nurses. The wonder to me is that any tracheotomy cases recover if left to the care of unskilled and very often ignorant and prejudiced attendants. There is a movement on foot to provide a trained nurse for the district in which I reside, and I sincerely hope it may succeed. I feel certain that had some of my cases been in a hospital or under the care of a trained nurse the result might have been different. My endeavour was to keep the respired air saturated with moisture, to keep the tube clear, to keep up the patient's strength, and to promote secretion from the bronchial tract. I cannot say that in this my directions were carried out always satisfactorily, and I cannot altogether blame those to whom the duties were entrusted. Through ignorance and the feeling that all treatment was useless, they left off doing as they were directed just when it was most necessary.

I would here remark how very strongly I feel that something more might be done than has hitherto been recommended in the way of locally treating the false membrane in the larynx. After operation I have used various medicaments—lime water, eucalyptus, compound tincture of benzoin, carbolic acid, salicylic acid, and others—with the view of destroying or dissolving the membrane, but have not found any of them of service.

(4.) Were the cases unsuitable for operation? If so, they were, I fancy, unsuitable on account of the complications. As regards the cause of death, two died from diphtheria, one from congestion of the lungs, contracted after the operation, and bronchitis, one from intussusception suddenly, one from syncope from delay, one from syncope from hooping-cough, and only one from obstruction of the tube.

If, however, it is not justifiable to operate in any except uncomplicated cases, I fear the suitable cases will be very few in number. It does not appear to me that tracheotomy should hold a very prominent place in the treatment of laryngeal obstruction from disease if it is only to be performed in uncomplicated cases. No doubt those of us who practise in the country are handicapped by not having all the appliances for treatment and nursing that we might desire. In spite of that, however, from my experience I am

led to conclude that so long as the early treatment of croup continues in such an unsatisfactory condition, the operation of tracheotomy ought to have a place in our routine practice, if not as curative, at least as capable of relieving a very distressing condition, viz., immediate death from suffocation.

I have said nothing in regard to tubage of the larynx, having had no experience of such treatment; but from what I have read in the medical periodicals, I am led to hope that the practice may yet give satisfactory results. It has this advantage, at least, that in the eyes of the relatives it is apparently a much less formidable proceeding than tracheotomy.

IV.—THE CAUSE OF THE HEAD DOWNWARD PRESENTATION, AND OF THE FIRST CRANIAL POSITION.

By JAMES FOULIS, M.D., F.R.C.P. Ed.

(Read before the *Edinburgh Obstetrical Society*, 8th February 1888.)

MR PRESIDENT AND GENTLEMEN,—Leading obstetricians are agreed that, in child-births occurring in all parts of the world, among all races of human beings, head presentations take place in about 95 per cent. of the cases, and that of these head presentations the first or left occipito-anterior position of the child's head, after it has entered the pelvic brim, occurs in about 75 per cent. of the cases.

When anything naturally occurs 95 times out of 100, as is the case with head presentations, or when anything naturally occurs 75 times out of 100, as is the case with the first cranial position, we may fairly conclude that there is in each case a discoverable cause or law in operation which brings about such results. Let us try to find out what is the true cause in each case.

The three chief theories before the world at present as to the causation of head downward presentations are those of Dubois, Sir James Simpson, and Dr Matthews Duncan.

Dubois's theory is that the head downward position is the result of "an instinctive impulse which inclines the foetus to take the most favourable position for its escape" (Dr Ramsbotham, *Obstetric Medicine and Surgery*, p. 309). That the movements by which the foetus comes to lie head downwards in the uterus are "volitional."

In his paper "On the Attitude and Positions of the Foetus in Utero," read before the Medico-Chirurgical Society of Edinburgh in December 1848, the late Sir James Simpson, while disproving Dubois's theory, tried to show that the natural position of the foetus in utero is brought about by reflex movements on the part of the foetus, excited by cutaneous irritation, which result in the foetus adapting itself to the obovoid shape of the uterus, so that

it comes to lie in the most comfortable position, and as free as possible from cutaneous irritations.

Dr Matthews Duncan, in opposition to this view, maintains that the head downward position of the child in utero, in the later weeks of pregnancy, is simply the result of gravitation.

I shall have to quote very fully from the writings of these last two authors, so that we may bring clearly before us the arguments which they use in support of their theories.

In the first place, let us see what Sir James Simpson says about the natural position of the foetus in utero during the last few weeks of pregnancy,—

“At, and for some time before, the full period of utero-gestation, the mode in which the child is situated in utero is generally as follows:¹ The trunk and spine are usually slightly curved, and the head is bent forwards, with the chin approaching towards the sternum. The thighs are drawn upwards, and flexed upon the abdomen; and the legs are flexed and laid along the posterior surfaces of the thighs. The feet, which are sometimes crossed, are thus placed near the nates, and in front of them. In the interspace between the knees and face the upper extremities are situated, the arms being laid across the sides of the thorax, and the forearms flexed and crossed in front of the chest.² The whole foetus is thus flexed and rolled up in an ovoid mass, of such a form as to occupy the least possible space. One end of the ovoid is formed by the head, the other by the breech of the child.

“Various opinions and modifications of opinions have been suggested in order to explain why the head of the infant is thus, before birth, usually placed lowest and over the os uteri, and why some special circumstances should occasionally change this law and produce malpresentations. Whatever explanation may be given of the position of the infant in utero, one fact has been sufficiently established in regard to it by modern investigations, namely, that the position with the head lowest is not assumed till the later months of utero gestation. Before the beginning of the sixth or seventh month the ovoid mass of the foetus lies in utero, in nearly an equal number of cases, with its cephalic and its pelvic extremities lowest, or over the os uteri; and in a considerable proportion of instances it is still placed across or transversely, so that the trunk is opposite the os uteri. Hence, in abortions, presentations of the feet or pelvis are nearly as frequent as presentations of the head; and presentations of the arm are by no means uncommon. In the Maternity Hospital of Paris, Professor Paul Dubois found that out of 121 foetuses, born alive or dead before the end of the sixth month, 65 presented by the head, 51 by the pelvis, and 5 were cross-births or presented by the arm or shoulder. Further, the position of the head towards the os uteri appears to be

“1 Through the kindness of Professor Goodsir, I am enabled to give, in Fig. 1, a sketch of the attitude of the foetus in a subject brought into the dissecting-rooms during the present winter. She had died of cholera, near the full time of utero-gestation. The placenta is seen situated on the right side of the uterus, opposite the right foot of the infant. In injecting the vessels, some wax escaped in the interspace between the two feet, and probably slightly altered their position.

“2 ‘The most common situation of the extremities is not to be determined, as they are found to be a little different in different dissections; and in the living body they vary almost every moment: thence the hands are seen indiscriminately on the head or face, or across one another, or around the knees or legs, or the legs are sometimes extended, and the feet are placed by the face, or one in that position, and the other contracted and the foot downwards.’—Dr William Hunter’s *Anatomical Description of the Gravid Uterus*, p. 62.

taken up more and more frequently and certainly from the end of the sixth month onwards. Out of 73 instances in which the child was born prematurely but alive during the currency of the seventh month, Dubois found it presenting by the head in 61 cases, by the pelvis in 10 cases, and by the shoulder in 2 cases. Hence, while before the end of the sixth month the proportion of head presentations amounted to 55 in the 100, during the course of the next month they were found already amounting to 82 in the 100; at the full time they amount, as we have previously stated, to 96 or 97 in the 100."

In speaking of the theory of gravitation being the cause of the head downward position of the fœtus, Sir James says:—

"The head is, proportionably to the body, far larger and heavier in the fœtus than in the adult. Most authorities have supposed that the position of the fœtus in utero with the head undermost was owing to the greater specific gravity of the head determining this part, *in the erect position* of the mother's body, to fall to the lowest part of the uterine cavity, or toward the os uteri."

He then proceeds to show that in women who have been confined to the horizontal position in bed during the whole time of utero-gestation, and who have never assumed the vertical position, the child still presents head downwards. Sir James uses this fact against the gravitation theory; but Matthews Duncan has clearly shown that the axis of the pregnant uterus, both in the *vertical* position and in the *dorsal* position of the mother, is such that the child may easily gravitate head downwards in both cases, and that the pregnant uterus is only horizontal when the mother is lying on her side.

Sir James again says:—

"If the physical gravitation of the head of the child were the cause of the normal position with the head lowest, then this position ought to be found with more frequency and certainty when the gravitation of the head from any cause was rendered proportionally greater than natural; with less frequency and certainty when, from other causes, the gravitation of the cephalic extremity of the infant was rendered proportionately less than natural. The very contrary, however, of all this is the truth. In cases of intrauterine hydrocephalus, the child's head is larger and heavier than usual, and sometimes it is so to an excessive degree. But this condition of the head, this increased preponderance and gravitation of it, does not render head presentations in these cases more common than usual, but the very reverse. In an excellent thesis on hydrocephalus of the fœtus as a cause of rupture of the uterus, my young friend, Dr Thomas Keith, last year collected the histories of 69 cases of intrauterine hydrocephalus at birth. Of these 69 hydrocephalic fœtuses, 11 presented preternaturally, or 1 in 6. When the head and fœtus is normal, preternatural presentations occur, in proportion to other presentations, as 1 to 26. Hence, preternatural presentation was four times more frequent in hydrocephalic than in natural cases, while it ought to be more frequent in the former than in the latter if the doctrine of gravitation were true. Again, anencephalic fœtuses, with the whole brain and arch of the cranium wanting, are still often found presenting naturally. I have been present at the birth of three anencephali that had reached the full term of pregnancy. All of the three presented with the deformed and diminished cephalic extremity over the os uteri."

With reference to this argument of the hydrocephalic fœtuses, Dr Matthews Duncan thus says:—

"Now this argument, when justly applied, is made to tell most decidedly in favour of the gravitation theory. The altered circumstances of a hydrocephalic foetus have been altogether misapprehended. The hydrocephalic head, although truly much larger and heavier in air, is probably lighter and more buoyant in water. In this question we have to do with hydrocephalic children only while immersed in liquor amnii. The larger the head is in these circumstances, the lighter and more buoyant it is, and the other extremity of the child is proportionally heavier. The fluid effused in hydrocephalus is specifically lighter than brain, and therefore renders the head more buoyant than it is under natural circumstances. It is also in all probability specifically lighter than liquor amnii, and consequently its accumulation will have a more decided effect in elevating the head. In this way it is demonstrated that the four times greater frequency of preternatural presentations in cases of hydrocephalic children proves rather than disproves the influence of gravitation in deciding the position of the foetus."

With regard to the anencephalic foetuses Matthews Duncan quotes from Dr William Hunter to the effect, that even without the head altogether, the upper part of the body of the foetus is heavier than the lower part, and that therefore the small-headed foetuses are still subject to the law of gravitation in the same way as the more heavily headed ones are. And with regard to Sir James Simpson's statement about the common occurrence of malpresentations in the later months of pregnancy in the case of *dead* children, Matthews Duncan adduces a number of experiments made by himself to show that after the foetus is dead in utero, "death and putridity produce great and rapid changes *quoad* gravity."

As the result of these experiments he concludes that—

"The healthy foetus floats obliquely with its head lowest in a fluid of its own specific gravity, a position corresponding to that which it has in utero.

"Soon after the death of the foetus in utero changes take place in it which alter its position of equilibrium in a fluid of its own specific gravity, so as to be generally the reverse of that of the healthy foetus,—that is, so as to be oblique with its head highest."

"It may happen that an advanced stage of decomposition of the foetus, with collapse of the cranium, may make its position of equilibrium, when floating, again oblique, with the head lowest."

Dr Matthews Duncan thus states his conclusions as to the theory that gravitation is the cause of the head downward position of the foetus in utero:—

"The position of the foetus at the full time is, in the great mass of cases, fixed and determined about the end of the seventh month of pregnancy. This arises from the fact that about that time the size and shape of the uterus become so nearly and closely adapted to the size and form of the foetus, that it cannot change the position of its trunk in any material degree. After this time the position of the foetus must be one determined by gravitation, for it is impossible to conceive its reposing in any other.

"All the knowledge we possess of the position of the foetus, after it has entered the second half of pregnancy, leads us to believe that its head lies ordinarily lowest. Before the seventh month it is still capable of having its position in utero changed, by changes merely in the attitude of the mother, and probably it possesses the power of effecting temporary changes, at least,

by its own unaided movements. But the foetus is generally in a state of repose, and not producing motions in its limbs or body. In this state of repose, in a fluid of nearly its own specific gravity, it is impossible to conceive of its maintaining any position but under the influence of gravity. Its position must at all times be mainly, if not entirely, caused and determined by statical circumstances. It is quite conceivable, that while still comparatively free in the uterus, it may, by virtue of its very easy mobility in the dense liquor amnii, change its position. If this occur at a time when its dimensions are beginning to approximate to those of the uterus, having overcome some resistance of the uterine walls by the force of its own muscular efforts, or otherwise—as by accidents to the mother—it may not gravitate back to its old and ordinary position; and thus a preternatural presentation may be produced. The uterine walls are everywhere smooth and glabrous, and rounded; and the foetus lies in this cavity with its legs, its chief organs of locomotion, elevated,—circumstances which appear to render its maintenance of any position but that of gravitation a greater feat than ever was performed by a rope-dancer. With all the advantages of its new circumstances, the child after birth cannot assume or maintain any position. How much less could it be expected to do so in the uterus, and under circumstances so disadvantageous for the fulfilment of such a function. Those authors who, with Dubois, strive to prove that the position of the foetus is determined by its own motions, have first to prove that it could maintain any position whatever against gravity, without such constant efforts as voluntary muscles are incapable of, and of the actual presence of which no evidence can be furnished.

“Did the foetus in utero maintain any position other than that of gravitation, it must be making incessant efforts to do so. A moment’s rest will insure its falling into a position given it by gravitation. It does not exert incessant activity,—therefore its maintenance of any position different from one produced by gravitation is impossible.

“At all times, and under all circumstances, the foetus must assume a position of gravitation as soon as it ceases to make efforts, whether voluntary, instinctive, or reflex.

“‘The reason,’ says W. Hunter, ‘why the child’s head is commonly downwards may be supposed to be this: the child is specifically heavier than the liquor amnii, and therefore, in the various attitudes of the mother, is always in contact with and supported upon the depending part of the uterus. This in the more common attitudes is the cervix uteri. The child’s head and upper part of the trunk contain more matter in proportion to their surface than the lower part of the body; thence the head will more generally fall down to the lower part of the uterus. And for the same reason, were a child to be dropped into deep water, in various postures and directions, its head would always first reach the bottom. But the motion of the head itself, either alone or in co-operation with the attitude of the mother, may sometimes turn the head towards the fundus uteri.’”

It is now necessary that I should refer very fully to Sir James Simpson’s remarks on “The Mode of Maintenance of the Position of the Foetus towards the end of Pregnancy.” I shall quote his exact words, because by the time we have read what he has said on this subject we shall have learnt that his theory teaches that the position of the foetus in utero in the later months of pregnancy is regulated by the shape of the uterus, and that what he calls the *natural position* of the foetus in utero is caused by the foetus struggling, as the result of excito-motory or reflex movements, to adapt itself to the shape of the uterus; and when once it is in that position, it lies most comfortably and most free from all

sources of cutaneous irritations which might excite disturbing muscular movements.

“Mode of Maintenance of the Position of the Fœtus towards the end of Pregnancy.”

“At, and, as we have already seen, for some time before parturition, the human fœtus is rolled up into an ovoid-formed mass, with its cephalic extremity placed lowest, or over the os uteri. When thus placed, it stands, so to speak, upon its head, when the mother is in the erect posture. To comprehend the mode in which this peculiar position is maintained during the latter period of utero-gestation, it is necessary to attend to the relative shapes or forms of the uterus and of the fœtus at that period. For it is the relation in shape of the fœtus to the uterus—of the contained to the containing body—that regulates this position. And the maintenance and restoration of the position is effected by reflex movements, when its continuance is from time to time threatened to be interrupted by movements of the mother's body, or by other circumstances affecting the conditions and relations of either the uterus or infant.

“The form of the uterus at the full term of utero-gestation is ovoid. See the outline of it from Hunter's most accurate drawing in Figure 3. ‘The general figure of the uterus at this time is,’ says Dr Hunter,¹ ‘oviform; the fundus answering to the largest extremity of the egg, and the cervix and os uteri to the small end; but the fundus is larger and more flat, or less pointed, in proportion to the lower extremity of the uterus, than one end of an egg is to the other. And the whole uterus seems more or less compressed, so as to be broader from right to left than it is from the fore backwards.’

“Towards the end of pregnancy the fœtus is situated in the uterus in such a way that the figure of the contained body (the fœtus) thus comes to correspond with the figure of the containing body (the cavity of the uterus), and is, as it were, fitted into it. Figure 2 represents the one ovoid (Fig. 4) thus adapted to the other ovoid (Fig. 3).

“At the advanced time of pregnancy of which we are speaking, when the uterus and fœtus are normal in shape and size, the fœtus cannot be placed transversely in the uterine cavity, so as to form a transverse or arm presentation, as there is not room for it to lie in that position. For the long axis of the ovoid mass is about 12 inches; the greatest breadth of the uterus is only 8 inches; so that the latter could not receive the former. For the same reason, when once the position with the head downwards is assumed, it comes to be difficult or impossible for the child near the full time to move round in utero, so as to turn its pelvic, instead of its cephalic extremity downwards, and towards the os. In fact, a compressible body of 12 inches in length, such as the rolled up fœtus is, cannot readily move through a space of only 8 or 9 inches, even though that space, like the transverse axis of the uterine cavity, be capable of dilatation and forcible alteration of shape.

“At and towards the full term of utero-gestation, the position of the fœtus with the head lowest is thus greatly maintained by the relative *physical* adaptation of the ovoid shape of the rolled up mass of the fœtus to the ovoid shape of the interior of the cavity of the uterus. But this particular adaptation and position of the fœtus in the uterine cavity would be often lost if no other additional and *vital* means were in operation—as we see indeed often happen when the child dies. The other additional vital means, by whose influence this special position is still further rigorously and carefully sustained, consists of the restoring influence of reflex motions on the part of the fœtus itself. For, let the relative adaptation and position of the fœtus be partially disturbed (as readily happens by any movements of the mother, as, for example, by her suddenly assuming the upright or supine postures, or other such causes), and immediately the fœtus, by a series of reflex movements of

¹ *Anatomical Description of the Human Gravid Uterus*, p. 3.

its extremities, particularly of its lower extremities, acts till it regains its former perfect position. It moves, in other words, till it has retaken that position in which it is most free from any marked excitations or compressions upon the external surface of its own body."

The following are the conclusions at the end of Professor Sir James Simpson's paper :—

"1. The usual position of the foetus, with the head lowest, and presenting over the os uteri, is not assumed till about the sixth month of intrauterine life, and becomes more frequent and more certain from that time onwards to the full term of utero-gestation.

"2. Both the assumption and maintenance of this position are vital and not physical acts, for they are found to be dependent on the existence and continuance of vitality in the child—concurring with its life, but being lost by its death.

"3. In human physiology, we do not know or recognise any vital power or action, except muscular action, capable of producing motions calculated to alter or regulate the position, either of the whole body, or of any of its parts ; and further, the motory muscular actions of the foetus are not spontaneous or voluntary, but reflex or excito-motory in their nature, causation, and effects.

"4. The position of the foetus, with the head placed over the os uteri, is that position in which the physical shape of the normal and fully developed foetus is best adapted to the physical shape of the normal and fully developed cavity of the uterus.

"5. This adaptive position of the contained body to the containing cavity is the aggregate result of reflex or excito-motory movements on the part of the foetus, by which it keeps its cutaneous surface withdrawn as far as possible from the causes of irritation that may act upon it as excitants, or that happen to restrain its freedom of position or motion."

Later on, in speaking of the irregular shape of the uterus as a means of causing malpresentations, he refers to Fig. 6 in the following words :—

"In Figure 6 I have copied from Chailly the figure which he gives of the shape of the uterus under a pelvic presentation. An uterus of such a configuration (with the ovoid reversed—the largest extremity lowest) would, according to the principles laid down in the text, lead to the pelvic instead of the cephalic position of the foetus."

And in speaking of the frequency of malpresentations in multiparous pregnancies he says :—

"The cavities which contain foetuses in multiparous pregnancy are more or less relatively different in shape from the cavity which contains the foetus in uniparous pregnancy. As the reflex irritations and movements of the foetus force it to adapt itself to the form of the cavity containing it, malpositions and malpresentations among those children are more common than among single births."

Now, I think we have very clearly before us the essence of Sir James Simpson's theory, which is, that in the later months of pregnancy the shape of the uterus—the containing body—regulates the position of the foetus—the contained body.

Hear what Matthews Duncan says with regard to this theory :—

"Now, this is a very grave error in reasoning, probably also in physiology.

"The error in reasoning consists in assuming as an essential part of the argument that the uterus takes an ovoid shape independently of its contents.

"The probable error in physiology is the assumption that the uterus assumes a shape independently of the ovum or the fœtus. It appears to me the very reverse is nearer the truth.

"The weight of authority is in favour of the opinion, that the ovum or fœtus gives laws of shape to the uterus, and not *vice versa*, as Sir James Simpson assumes.

"The uterus has no difficulty in adapting itself to great distension, to the shape of twin ova, to the shape of deformed women, or to the shape of a collection of fibrous tumours.

"William Hunter, in his anatomical description of the human gravid uterus, describes the plastic state of the uterus as making it adapt its figure to the circumstances of the child within, and vary as these change. He says its figure differs from the regular oviform from a variety of accidental causes, as it adapts itself to the neighbouring parts, to the attitude of the body, and to the position of the contained child. 'We not only,' says he, 'in dead bodies see the parts of the child making a variety of different projections on the outside of the uterus, but in the living body all the same variety is frequently manifest to the touch, on examining the outside of the abdomen.' Dr Read, in his work on *Placenta Prævia* (p. 97), makes the following statement regarding the form of the uterus: 'In normal presentations, at the period of its utmost development, the general outline of the uterus is pyriform, the base being above, and the apex resting in the cavity of the pelvis. When the breech presents, it becomes almost globular; and in transverse presentations, the long diameter is nearly at right angles to the axis of the pelvis,—proving very conclusively, that the shape of the uterus at the termination of gestation is not the result of development, but depends upon the position of the contained fœtus. Lastly, I quote briefly from Joulín who, in his *Traité Complet d'Accouchements* (p. 1006), says, 'The uterus in pregnancy is a membranous and pliant sac, which has no other form than that which is impressed upon it by the situation of the infant.'"

I have given these copious extracts from the papers of Sir James Simpson and Dr Matthews Duncan, because I wish to bring clearly before the Society, and to place side by side the arguments used by them in support of their respective theories as to the cause of head downward presentation of the child.

Sir James Simpson's theory is that the uterus in the later months of pregnancy assumes a certain form, and that the fœtus by muscular movements, excited in a reflex manner by cutaneous irritations, adapts itself to the shape of the uterus, so that it may lie in the most comfortable position, and as free as possible from cutaneous irritation. As often as the uterus assumes an obovoid form, the fœtus is forced to lie head downwards, because its breech end fits most comfortably into the upper part of the uterine sac, or the obovoid end of it.

Sir James Simpson also goes further, and endeavours to show that when the uterus assumes an abnormal form, that is, for example, a form in which the larger end of the uterine sac is below, then the child is forced to lie in the uterine cavity with its breech end lowest. Thus Sir James Simpson makes the child's position in utero depend on the shape of the uterus, or, in other words, that it is the shape of the uterus that determines the

position of the child in the later months of pregnancy. According to his theory, if the shape of the uterus is natural, that is obovoid, then the presentation will be natural or head downwards; and if the shape of the uterus is unnatural or abnormal, then the presentation will be a breech or transverse, or other abnormal presentation, according to the shape of the uterine sac.

In opposition to all this, Matthews Duncan argues that Sir James Simpson has committed a great error in assuming that the uterine sac grows into a certain form independently of the form of the contained foetus. He would have it that the form of the uterine sac in the later months of pregnancy is determined by the shape of the foetus, and that the form of the uterine sac has little or nothing to do with the causation of the presentation, normal or abnormal, of the foetus.

The essence of Dr Matthews Duncan's theory in opposition to Sir James Simpson's is, that gravitation alone determines the head downward position of the foetus in utero. "Did the foetus in utero maintain any position other than that of gravitation, it must be making incessant efforts to do so." "A moment's rest will insure its falling into a position given it by gravitation." "It does not exert incessant activity, therefore its maintenance of any position different from one produced by gravitation is impossible." "At all times, and under all circumstances, it must assume a position of gravitation as soon as it ceases to make efforts, whether voluntary, instinctive, or reflex."

(To be continued.)

V.—EARLY CONTRIBUTIONS OF ANATOMY TO OBSTETRICS.

By A. H. F. BARBOUR, M.A., B.Sc., M.D., F.R.C.P.E., Lecturer on Midwifery and Diseases of Women, Edinburgh Medical School; Assistant Physician for Diseases of Women to the Royal Infirmary; Junior Assistant Physician to the Maternity Hospital; Physician to the Women's Dispensary; Inspector of Examinations in Midwifery; Corresponding Fellow of the Royal Academy of Medicine of Turin.

(Read before the Edinburgh Obstetrical Society, 9th May 1888.)

IN these "Early Contributions of Anatomy to Obstetrics," we have to review the time from the foundation of medicine under Hippocrates to the end of the sixteenth century. We may group them under three periods—1. Before the Christian era; 2. From the commencement of the Christian era to the fall of Rome; 3. (after the break of the ten centuries of the Dark Ages) From 1500 A.D. to the close of the sixteenth century. Each of these periods begins with an important name—the first with Hippocrates; the second with Soranus; the third with Berengario da Carpi.¹

¹ We make this third period begin with Berengario and not Mondino advisedly, for reasons to be given afterwards.

FIRST PERIOD.

This period extends up to the Christian era; and, in addition to Hippocrates, with whom it begins, we have to notice the names of Aristotle, Herophilus, and Celsus.

In the history of medicine, the name from which everything dates is *Hippocrates*, the "Father of Medicine" (*flor. circa* 470–400 B.C.).¹ He dissected animals only. This probably explains the idea which prevailed in his time, and even at a much later date, that the human uterus consisted of two cavities. One of his aphorisms runs, "Male foetuses are oftenest in the right, and females in the left."² The same idea is seen in the less certain Hippocratic writing, *περὶ ἐπικνήσιος*, in which the double cavity of the uterus is held to explain superfœtation.

The next name of interest is that of *Aristotle* (B.C. 384–322). Of him Haller, in his *Encyclopædia of Anatomists*,³ says, "he dissected even living animals, and, first in history, took care to have anatomical plates made, lettered just as ours are. . . . He often compared human viscera with those of animals, so to speak, one by one, so that we cannot at all deny that this great man had some knowledge of human anatomy." Although Aristotle gives us no special description of the uterus in the human female, he evidently believed that it was bicornuous like that of the lower animals, as the following references show:—" (10.) . . . The uterus of all animals, in which it lies near the genitals, is bifid, one half on the right and the other on the left." And, in the next paragraph, he puts the uterus of man in the same category as that of the dog, pig, horse, and horned animals.⁴ Further, in speaking of the cause of difference of sex, he refers to the view that males were developed in the right, and females in the left half of the uterus.⁵

Herophilus of Chalcedon (B.C. 300) has, according to Sir William Turner,⁶ along with Erasistratus, the distinction of being known to posterity as the first "who dissected and described the parts of the human body. Both these physicians flourished under Ptolemy Soter, and probably Ptolemy Philadelphus, and were indeed the principal supports of what has been named in medical history the Alexandrian School, to which their reputation seems

¹ Aulus Gallius says that Hippocrates was a contemporary of Socrates, but older than he; the dates of his birth and death are unknown (*Francis Adams*).

² *Magni Hippocratis Opera Omnia in Medicorum Græcorum Opera quæ extant*. Editionem curavit D. Carolus Gottlob Kühn. Lipsiæ, 1827. Tom. xxiii. p. 745.

³ *Bibliotheca Anatomica quæ scripta ad anatomen et physiologiam facientia a rerum initivis recensentur*. Lugduni Batavorum, ex officina Haakiana, MDCCCLXXIV., Tom. i. p. 3.

⁴ *De Animalibus Historia*, lib. iii. cap. i. On page 36 of vol. v. of *Aristoteles Opera Omnia*, Gr. et Lat., Paris 1857–1874.

⁵ *Ibid.*, p. 392.

⁶ Article "Anatomy" in *Encyclopædia Britannica*, 9th edition.

B.C. 470—400 ? **Hippocrates.**

384—322 Aristotle.

300 Herophilus.

53—7 (A.D.) Celsus.

A.D. 100 ? **Soranus.**

130—200 Galen.

ib. Aretaeus.

400 ? Moschion.

1316 Mondino di Luzzi.

1522 **Berengario da Carpi.**

1543 Vesalius.

(1552) Eustachius.

1561 Fallopius.

1672 De Graaf.

1681 Malpighi.

1726 Ruysch.

1730 Douglas.

1745 Haller.

1747 Albinus.

1754 Smellie.

1754 Donald and Alexander Monro.

1757 Roederer.

1774 William Hunter.

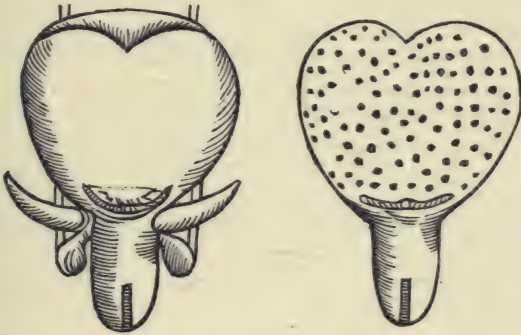
Chronological List of Names referred to in "Early Contributions of Anatomy to Obstetrics" arranged according to the year in which their Work appeared. (*For system of grouping, see text.*)

ΕΚ ΤΩΝ ΣΩΡΑΝΟΥ ΠΕΡΙ
μήτρας καὶ γυναικίου αἰδίου.

Η

Μήτρα δ' ὅστερα λέγεται καὶ δελ-
φίς· μήτρα μὲν οὖν, ὅπ' μήτηρ
ᾧ ἐστὶ δὲ αὐτῆς γυμνοῦνται ἐμ-
βρυῶν, ἢ ὅπ' αὐτὰς ἐχούσας αὐτῶν
μήτρας ποιεῖ· καὶ δὲ πινας, ὅπ'
μᾶλλον ᾧ ἐστὶ χεῖρον πρὸς καὶ παρ-
σιν δὲ ἀπὸ τῆς ἰν' ὅστερα δὲ, δὲ τὸ
ἐχάτῳ κῆρα καὶ πάλαι, καὶ
εἰ μὴ πρὸς ἀκρίβειαν, θηὰ καὶ πλάτος· δελφίς δὲ, δὲ τὸ
αἰδέλαφον αὐτῶν ἐστὶ γυνηκικόν.

REPRODUCTION OF OPENING SENTENCE FROM SORANUS—the MS. published in Paris in 1554.



DRAWING OF UTERUS (REDUCED $\frac{1}{2}$ SCALE) FROM BERENGARIO DA CARPI.



DRAWING OF UTERUS FROM
MOSCHION.

DRAWING OF UTERUS (REDUCED $\frac{1}{2}$ SCALE)
FROM VESALIUS

to have attracted numerous pupils." My reason for mentioning Herophilus here is that Haller¹ says of him that "he was diligently versed in the genital organs of both sexes, and discovered the epididymis. He points out that the os of a gravid uterus before labour will not admit a stilus. . . . In some women he saw four veins coming from the renal vessels to the uterus—probably the spermatic vessels." As his works have not been preserved, these facts are gained from references in other writers.

The eight books of *Celsus* (B.C. 53 to 7 A.D.) contain but scanty references to female anatomy. In lib. iv. 1,² he says,—

"The vulva in virgins is somewhat small. Moreover, in women, except when they are gravid, not much larger than can be embraced by the hand. It being straight and continued in a neck, called the canal (vagina),³ rising in a line with the middle of the belly, turns thence a little towards the right hip; then, passing above the rectum, becomes united at its side to the ilia of the female. The ilia themselves are placed between the hips and pubis in the lower belly."

He writes about procidentia of the os vulvæ (lib. vi. 18); the removal of calculus (lib. vii. 4); atresia (lib. vii. 28), mentioning two varieties ("when uterine, the membrane is opposite to the mouth of the vulva; when from ulceration, it fills it with flesh"), and describing how the hymen is to be incised crucially and then cut away; but he gives no anatomical facts. And even in his lucid and judicious directions for the extraction of a dead fœtus (lib. vii. 29) we feel the same want. I draw your attention to the scantiness of female pelvic anatomy in the works of Celsus (whose life belongs to the period before the Christian era) in order to contrast it with the remarkable knowledge of the next writer, who begins what we have made our "Second Period."

SECOND PERIOD.

This period extends to the fall of the Western Empire and the commencement of the Dark or Middle Ages. Besides Soranus, with whom we make it begin, we have to notice Galen, Aretæus, and Moschion.

The first great contribution of Anatomy to Obstetrics is to be found in the remarkable work of *Soranus of Ephesus*, "Concerning Diseases of Women," (of which we have now a scholarly edition by Ermerins⁴)—a work which, with the exception of a single chapter, has only in this century been rescued from an undeserved oblivion most hurtful to obstetrical and gynæcological science.

¹ *Op. cit.*, tom. i. p. 60.

² *Aurelii Cornelii Celsi Medicinæ*. Impressum Venetiis per Philippum pinzi. Sumptibus domini Benedicti fontana. Anno domini 1497, die vi. Mai.

³ Ea recta continuataque cervicæ quem canalem vocant. By "canalem" is evidently meant the vagina.

⁴ Σωράνου Ἐφεσίου περί γυναικῶν παθῶν: Sorani Ephesii liber de muliebribus affectionibus. Recensuit et Latine interpretatus est Franciscus Zacharias Ermerins. Trajecti ad Rhenum apud Kemink et filium, 1869.

The first edition of this book, as we learn from Ermerins' preface, was published in 1838 by F. R. Dietz from two codices—a Parisian of the fifteenth and an Italian of the sixteenth century. Soranus himself must have flourished a generation (“*lustra aliquot*,” says Ermerins) before Galen, who lived from about 130 to 200 A.D., as that physician had a dispute with a disciple of Soranus.

The single chapter on anatomy was published in Paris in 1554 along with three monographs of Ruffus Ephesius. This volume is in the College of Physicians' Library. On the first page we have a quotation from Suidas, a Greek grammarian who wrote in the twelfth century A.D. a lexicon forming a kind of cyclopædia and dictionary:—“Soranus Ephesius, the son of Menander and Phœbe, lived some time at Alexandria, practised as a physician at Rome in the reigns of Trajan and Hadrian, and composed many beautiful books:—Books about Women, four; Lives of Physicians, Selections, and Collections of Writings, ten books; and other things of interest.” We have reproduced in our illustrations the opening sentence of this chapter.

Of him Haller says,¹ “Soranus Ephesius lived before Archigenes, who speaks of the Alopecia of Soranus. He was the chief of the Methodici, whom Cælius Aurelianus either translated into Latin or copied.” Haller here places Soranus among the Methodists—one of the three schools into which the followers of medicine in ancient times were divided. These schools are known as the Empirical, the Rational, and the Methodist. The different standpoint of each school is thus described by Dr Adams in his Preface to the Seven Books of Paulus Ægineta. “The Empirics held that observation, experiment, and the application of known remedies in one case to others, presumed to be of a similar nature, constitute the whole art of cultivating medicine. . . . The sect called the Rational, Logical, or Dogmatical, holding that there is a certain alliance and connexion among all the useful and ornamental arts, maintained that it is the duty of the physician not to neglect any collateral science or subject. . . . The sect of the Methodists, rejecting altogether the consideration of remote causes, which they held to be of no importance to the cure, and giving themselves up to too bold a classification of diseases, according to certain hypothetical states of the body in which they were supposed to originate, fettered themselves too much with a few general rules, which they held to be so universally applicable that they would scarcely allow of their being modified by incidental circumstances in any possible contingency.” Taking the description which Dr Adams here gives of the Methodici, we find Soranus to have been much broader than his school; and, whatever his theory was, we should rather place him alongside of Hippocrates, Galen, and Ægineta in the Rational school.

The book “Concerning Diseases of Women” consists of sixty-

¹ *Op. cit.*, p. 71.

six sections; and his scientific arrangement and treatment of the subject are more like the nineteenth century than the second. In his preface, after mentioning other possible divisions of the subject—as into Theoretical and Practical; Hygiene and Treatment of Disease; what is according to and what is against nature; Physiology, Pathology, and Therapeutics—he says that his division is into Obstetrics and Subjects related to Obstetrics. After describing the qualifications desirable both in studying and practising the art, he says, “But since we are about to pass to the description of what occurs in women in health, we must first explain the structure of the organs, which in part can be studied directly, in part by anatomy; and although it is of no use, nevertheless, since it is held to be a part of enlightened education, we shall teach what is known of it. For we shall be more readily believed when we say that anatomy is useless, if we have first shown ourselves to be acquainted with it; nor shall we provoke the suspicion that to cover our ignorance we have depreciated one of those subjects which are deemed useful.” After paying this tribute to the view of his school, he gives an admirable account of the anatomy of the organs of generation. Ermerins gives the Greek text compared and revised, and also a Latin version. We have made the following translation of the chapter on anatomy from the Greek original. No apology is needed for introducing it here, so that English readers may become acquainted with this splendid and long-buried contribution of anatomy to obstetrics.

[Translation of the Chapter on the Anatomy of the Female Organs of Generation, from the work of Soranus on “Diseases of Women.”]

CHAP. III.—THE NATURE OF THE UTERUS AND FEMALE PUDENDA.

UTERUS.—The Uterus, ἡ μήτρα, is called also ὑστέρα and δελφύς: μήτρα, because it is *mother* (μήτηρ) of the fœtuses born from it or because it makes those having it mothers, according to some because it has a *measured* period (μέτρον χρόνου) for menstruation and bringing-forth; ὑστέρα, because it exhibits its functions *late* (ὑστέρον) or because it occupies, if not exactly at any rate on the whole,¹ the *lowest part* of the female intestines; δελφύς, because it brings forth *brothers* (ἀδελφοί).²

ITS POSITION.—It lies in the space between the acetabula, between the bladder³ and the rectum, resting upon the latter, but beneath the bladder either in whole or in part according to change in its size. For in infants it is smaller than the bladder, and hence comes to be entirely under it; but in virgins at puberty it reaches the same height as the bladder. In those

¹ Εἰ καὶ μὴ πρὸς ἀκρίβειαν ἀλλὰ κατὰ πλάτος.

² Liddell and Scott give μήτηρ, a *mother*, as the derivation of μήτρα. With regard to ὑστέρα, they say that “if from ὑστέρος, the *last* or *lowest part* of the female intestines, it cannot be connected with the Latin *uterus*, which is probably akin to ἔντερα: but more probably it is akin to *uterus* and not to ὑστέρος.” They make ἀδελφός come from δελφύς, not δελφύς from ἀδελφός.

³ This description is evidently taken from the dissection of a cadaver in the horizontal posture.

more advanced in age and in married persons, especially multiparæ, it is even larger so that it extends to where the colon stops. It is still larger in pregnancy, as any one can see—the peritoneum and hypogastrium being pushed forward according to the development of the fœtus with its membranes and fluids. After delivery it becomes contracted, but retains a larger size than before pregnancy. Under these circumstances, accordingly, it is larger than the bladder and does not lie right under it;¹ for, in front, the neck of the bladder projects beyond, ending in the urethra and stretched alongside of the whole vagina,² but falls short of the uterus above. Behind, the fundus of the uterus lies higher than the fundus of the bladder, being under the umbilicus; so that the cavity of the bladder lies upon the neck of the uterus and its fundus upon the cavity of the latter.

LIGAMENTS.—The uterus is connected by thin membranes, above with the bladder, below with the rectum, to the sides and behind with the parts springing from the ilia and sacrum. When these [membranes] are shortened by inflammation, it is dragged on and lies to the side;³ when they are weakened and relaxed, it falls down; not because it is an animal⁴ as some have thought; but having, as it were, a sensitiveness, and thus being contracted by astringents and relaxed by emollients. The shape of the uterus is not convoluted as in the brutes, but more like a cupping-glass.⁵ For, beginning from the rounded and broad end at the fundus, it contracts sensibly to the narrow mouth. The first and projecting part of it is called *στόμιον*;⁶ next comes the *τράχηλος*,⁷ then the *αὐχὴν*;⁸ these last two together form the *καυλός*.⁹ Where it broadens out beyond the constriction of the neck, we have first the *ὠμοί*,¹⁰ then the *πλευρά*;¹¹ last of all the *πυθμήν*,¹² beneath which is the *βάσις*.¹³ The whole space is called *κύτος*,¹⁴ *γάστρα*,¹⁵ *κόλπος*.¹⁶ The *os uteri* lies in the centre of the female genital

¹ Under, from the dissector's point of view; behind, in the erect posture.

² Ermerins inserts *καὶ παρατριπώμενος* (and being perforated). He says that the codex has *παρατριβομενος* (being rubbed against it, i.e., being in close contact with it).

³ It is interesting to note that, even at this early period, the effect of cellulitis in causing uterine displacement had been noticed.

⁴ See one of the passages quoted from *Aretæus*.

⁵ *Σκύβα*, literally a gourd; then a cupping-glass, because shaped like the long gourd. In the edition of Celsus by E. Milligan, an ancient brazen cucurbitula is figured; but the belly is rounder and the neck is foreshortened. Celsus tells us that it was used by pouring a hot liniment into the flask, the mouth of which was then applied to the skin.

⁶ i.e., mouth, now *os uteri*, by which term we shall translate it throughout.

⁷ Neck, now *cervix*.

⁸ The narrow part of the neck, now *isthmus*.

⁹ The stem.

¹⁰ Shoulders.

¹¹ Literally ribs, then sides.

¹² Literally the hollow or belly of a drinking-cup; including more than what we now call fundus, which Soranus names *βάσις*.

¹³ The lowest part or base, now *fundus*. What we call the "body of the uterus," Soranus thus divides into two portions: (1), the *πλευρά* or sides, corresponding in position to the horns; (2), the *πυθμήν* or widest part, corresponding to the rest of the body except the *basis* or fundus.

¹⁴ The hollow.

¹⁵ The belly.

¹⁶ Literally a hollow, then a bosom-like fold of a garment. The term is usually restricted to the vagina, hence our word "colpitis," and is thus used by Soranus further on; here it includes the cavity of the uterus.

organs, for the cervix is closed in by the labia ;¹ the os is removed from these, in some more, in some less, according to age : in adults, generally $3\frac{1}{2}$ or 4 inches ;² in those who have borne children, it comes to be nearer through elongation of the cervix. The size [of the os uteri] varies, and is in most persons normally as large as the outer end of the auditory meatus. It opens at certain times : as in the orgasm of coitus to receive the semen,³ during menstruation that the blood may escape,⁴ in pregnancy according to the growth of the embryo, and in labour to the greatest extent until it will admit the full-sized hand. In texture, it is soft and fleshy in virgins, like the sponginess of the lungs or the smoothness of the tongue ; but in those who have borne it becomes more callous, like the head of a polypus, or, as Herophilus⁵ says, like the end of a bronchus—becoming hard through the passage of discharges and by parturition.

STRUCTURE.—The whole uterus is as far as possible fibrous,⁶ not composed of fibres alone, but also of veins, arteries, and flesh. Of these, the fibres come from the membranes of the spine, but the arteries and veins from the vena cava and the large artery lying on the spinal column—for two veins spring from the vena cava and two arteries from the large artery, of which one vein and artery run towards each kidney ; but before these enter the kidneys they bifurcate, two branches going to each kidney and two embracing the uterus, so that the latter receives four vessels—two arteries and two veins.⁷ From these, an artery and vein pass to each ovary.⁸

OVARIES.—The Ovaries grow out from the side near the isthmus about opposite to the middle of the uterus.⁹ They are not of firm consistence, are glandular, and are covered with their own membranes. In shape they are, unlike the male organs, long and somewhat flat ; and are round and broad at their base. The spermatic vessel from the uterus is carried out of each ovary, and, being placed along the sides of the uterus as far as the bladder, enters into the neck of the latter.¹⁰ Whence it appears that the seed of the female, inasmuch as it is poured out, does not play a part in the production of life. Of this we shall speak when we treat of the seed.¹¹ There are some, amongst whom is Chius, who say that there are suspensory ligaments for the ovaries ; and we have seen the same with our own eyes in a woman suffering from hernia, in whom during the operation the

¹ Πτερυγώματα, literally *wings* ; *Vide postea* on “ External Genitals.”

² Literally five or six fingerbreadths, the fingerbreadth being about $\frac{7}{16}$ inch. This is more accurate than that given in Quain's *Anatomy*, which makes it 4 in. along anterior wall and 5 to 6 in. along posterior.

³ Cf. J. Matthews Duncan's *Lectures on Sterility*, London 1884, p. 131.

⁴ Cf. Burton's “ Observations on the Cervix becoming more Patulous during Menstruation,” *Brit. Med. Jour.*, 1884, ii. p. 607.

⁵ *Vide antea*.

⁶ Νευρώδης from νῆρον, a sinew, nerve.

⁷ It is difficult to understand Soranus' description here. It is only on the left side that the uterine veins open into the renal. We must, however, remember that fifteen centuries must elapse before the idea of filling the vessels with wax, so as to allow of their being dissected out, springs up in the fertile mind of Swammerdam (1672).

⁸ Δίδυμος, literally *double*, then *twin*, then *testicle* or *ovary*.

⁹ Παρ' ἐκάτερον πλευρὸν ἀνὰ εἰς. “ Pleura ” corresponds to the middle segment of the side of the uterus, *v. antea*.

¹⁰ It is not clear what vessel is here referred to. From the fact that it enters the neck of the bladder, we might suppose it to be the ureter ; but, as it is distinctly said that it enters the ovary and also runs down the side of the uterus, it is more probably the uterine artery.

¹¹ Soranus evidently missed the discovery of the tubes made by Fallopius fourteen centuries afterwards, and supposed that the ova were carried into the bladder and ejected.

ovary fell down through relaxation of the vessels which support and surround it, and with these the suspensory ligament came down.¹

SURFACES OF UTERUS.—The whole uterus is made up of two coats, which differ in their arrangement like parchment.² The outer is more fibrous and smooth and firm and white; the inner is more fleshy and villous and soft and red³—intertwined throughout with vessels, which are most numerous and noteworthy over the broadest part of the body,⁴ where the seed becomes adherent and from which the menstrual discharge takes place.⁵ Those two coats are kept together by softer and more fibrous bands; and, accordingly, when these are stretched, the uterus frequently falls down, the fibrous coat remaining in its place, the other one descending inverted.⁶ Further, commonly in multiparæ, the uterus has folds running towards the body, usually two, and closely folded so as to be like felt; in those who have borne, the whole uterus is stretched out and becomes rounded.⁷ Diocles⁸ says that there are cotyledons⁹ in the cavity of the uterus called *πλεκτάναι*¹⁰ or *κεφάλαι*,¹¹ which are nipple-like outgrowths, broad at the base, and narrowing to the top; that they lie on both sides, being devised by Nature for the sake of teaching the embryo to practise beforehand how to draw at the nipples of the breast.¹² But they make anatomy speak falsely, for the cotyledons are not found; and what they say about them is contrary to Nature, as has been proved in treatises on generation.

SYMPATHETIC RELATIONS OF UTERUS.—We must not suppose that the uterus is essential to life, for not only does it fall down, but in some it may be cut away without causing death,¹³ as Themiso¹⁴ has recorded, and they say that in Galatia pigs fatten after the uterus is cut out. Nevertheless, it affects sympathetically the stomach and membranes.¹⁵ It has, moreover, a certain sympathetic relation to the mammæ: at all events, when it grows larger at puberty, the breasts also swell out simultaneously; and although it brings the seed¹⁶ to perfection, yet the mammæ prepare milk for the nourishment of the offspring when born; and when the menses flow freely

¹ Perhaps the Fallopian tube is referred to here.

² *τῶν χαρτῶν*.

³ Soranus is here describing the wall of the uterus as seen on its two surfaces—the peritoneal and mucous-membrane; we must remember that he is not describing the coats of the uterus as in section—an altogether modern method. In preparing parchment, two layers of papyrus were woven together.

⁴ *Πυθμήν*, the widest part of the body, *v. antea*.

⁵ This incidental reference to the menstrual discharge as coming from the body of the uterus is worthy of note.

⁶ Soranus apparently thinks that in Inversion the whole wall is not inverted.

⁷ Soranus is here apparently speaking of the two stems of the *arbor vitæ*; and does he here, like Küstner, refer to the *arbor vitæ*'s being less marked in multiparæ than in nulliparæ? We note that he does not think it worth while to contradict the received view that the uterus consisted of several cavities; he contents himself with simply describing what he has seen.

⁸ Diocles lived about the end of the 4th century B.C.

⁹ This word means (1), *the suckers or the feelers of the polypus*; (2), hence *the feelers themselves*; also (3), in plural, *certain vessels at the mouth of the uterus of some animals* (Hippocrates).

¹⁰ Literally, *feelers of the polypus*.

¹¹ Literally, *horns*.

¹² Soranus is evidently here poking fun at Diocles.

¹³ Where is the recorder of recent statistics of extirpation of the uterus?

¹⁴ Quoted elsewhere by Soranus, but I cannot find when he lived.

¹⁵ *Μήρυγες*—nervous system (?).

¹⁶ *i.e.*, ovum or embryo.

the milk dries up, while as long as the milk comes freely the discharge does not appear; so also in those past their prime, when the uterus grows smaller the mammæ likewise somehow waste away, and when the embryo is diseased their size is reduced—in fact when in the pregnant we see the breasts fall away and contract, we anticipate that there will be a miscarriage. So much for the nature of the uterus.

VAGINA.—The Female Pudenda are also called κόλπος γυναικείος.¹ The wall is fibrous and somewhat rounded, like intestine, more roomy at its inner and narrower at its outer end; and in it sexual intercourse takes place. It is attached internally to the cervix uteri, externally to the labia, inferiorly to the breech, laterally to the fleshy parts of the acetabula, superiorly to the neck of the bladder—for this last, as we have said, extending beyond the os uteri and being placed close above the genitals, opens at its end into the urethra. Accordingly, it is evident that the vagina lies beneath the neck of the bladder, but upon the anus and the sphincter and the lowest part of the rectum. Its length, as we have mentioned above, varies not only with age, or with sexual intercourse, in which the cervix being elongated like the male organ takes up some part of the vagina; but also some have by nature a longer cervix, and others a very much shortened one. The length [of the vagina] is in most adults 4 inches. It is certainly closed and narrower in virgins, being furnished with folds held together by vessels taking their rise from the uterus; these cause pain in first sexual intercourse when the folds are opened out, for they are broken and discharge the blood usually seen. For the view is false that a thin partition-membrane has grown up, barricading the vagina; that this is broken, and causes pain at first sexual intercourse or sooner when menstruation sets in; and that, grown thicker, it produces the disease called atresia. For in the first place, it is not found in dissection; and in the second place, in virgins it ought to offer resistance to examination with a probe, for the probe penetrates deeply; in the third place, if the membrane was the cause of pain in intercourse, excessive pain must necessarily accompany the appearance of menstruation, and not be delayed till coitus.² Further, if the membrane's becoming thick caused atresia, we should find it in the same place constantly, in the same way in which we always see other parts each in its own place. But in cases of atresia, the obstructing membrane is found at one time near the labia, at others in the middle of the vagina,³ at others at the os uteri. So much for the vagina.

EXTERNAL GENITALS.—The parts seen outside are called περιγνώματα,⁴ forming, as it were, the lips of the vagina. They are thick, fleshy, and extending down beside each thigh, as it were, diverging from each other; above, they end in what we call νόμφη,⁵ which is the beginning of the two labia. In Nature this fleshy prominence is muscular, and it is called "nymphē" through its being covered as brides are veiled.⁶ Below the clitoris another fleshy prominence lies concealed, which belongs to the neck of the bladder; it is called the urethra. The rough portion forming a fold within is called χείλος.⁷

BLADDER.—The Female Bladder differs from that of the male; for

¹ Here used, as will be evident from what follows, of the vagina. He goes on to describe the vaginal walls, etc.

² Soranus here combats some view that the hymen was always imperforate, and hence had to be broken even when menstruation sets in.

³ Αἰδοῖον—here used for the vagina.

⁴ i.e., wings—the labia majora.

⁵ Not what we now term the nymphæ (labia minora), but the clitoris, as is evident from his description of its relations.

⁶ Διὰ τὸ ταῖς νυμφενομέναις ὁμοίως ὑποστέλλειν τὸ σαρκίον.

⁷ i.e., a lip—the labium minus.

the former is larger, and has the neck curved, the latter is smaller with a straight neck.

The nature of the female organs having been described, we go on to the functions of the Uterus:—Menstruation, Conception, Pregnancy; and, after development of the fœtus, Parturition. Following the natural order, we shall speak first of Menstruation.”

In reading this chapter no one can fail to be impressed with the scientific orderliness with which the subject is treated, the exclusion of matter adventitious to anatomy, and the dogged keeping to facts.

In the subject matter we note the following statements as of peculiar interest in relation to more modern work:—“When these (the ligaments) are shortened by inflammation, it (the uterus) is dragged over and lies to the side.” “It (the os externum) becomes open at certain times, as in the orgasm of coitus, to receive the semen, and during menstruation that the blood may escape.” “. . . . the body of the uterus where the seed becomes adherent and from which the menstrual discharge takes place.” “Further, and most commonly in nulliparæ, the uterus has folds running towards the body, usually two, and folded like felt.” “But now in cases of atresia the obstructing membrane is found at one time near the labia, at others in the middle of the vagina, at others at the os uteri.” The references to operations for hernia in which the ovaries were seen and to the extirpation of the uterus (apparently prolapsed) are of great interest.

As to style, it has that rather of the scientific teacher than of the investigator, and is therefore to be regarded, I think, as the finished product of anatomical investigation done by many hands, probably in the dissecting rooms at Alexandria. This only makes it the more remarkable, that Galen, whom we pass to next, either did not know or took no notice of the book, and the more to be regretted that all the work on which it was based was lost, and had to be done over again fourteen centuries later at the Revival of Learning.

(To be continued.)

VI.—CASE OF EXTRAUTERINE GESTATION.

By ALBERT E. MORISON, M.B., C.M., M.R.C.S. Communicated by Dr J. W. BALLANTYNE.

(Read before the Obstetrical Society of Edinburgh, 13th June 1888.)

MRS I., æt. 30, mother of five children, eldest 12, youngest 3 years. First seen by my brother on 6th December 1887.

History.—She states that two years previously she had an attack of inflammation of the bowels, which her medical adviser said was brought on by cold during a menstrual period. This illness kept her in bed nearly three months. From that time up to two months from my first visit to her she had been well. She

then menstruated normally, but had not been right since, having missed a period.

6th December.—She complains of periodic attacks of pain in the lower part of the bowels so severe as to confine her to bed.

On *13th December* she had considerable hæmorrhagic discharge from the vagina, and this, together with the severe periodic pain and the probability of pregnancy, aroused the suspicion of commencing abortion. She would not allow any examination to be made, so that it was impossible to form any accurate opinion. The discharge continued more or less severe every day. The pains got worse and more frequent, and her general health began to fail from sickness, loss of appetite, and pain. The temperature during the last week has been 100° in the morning, 101° in the evening.

It was not till *24th December*, however, that she would allow any examination to be made, when, owing to her struggles and complaints, nothing very definite could be arrived at, though a soft tender swelling was found in Douglas's pouch.

On *28th December*, with the consent of her friends, she was induced to take chloroform, and the following condition of things was found:—

Per vaginam.—The uterus is enlarged, cervix soft and like a pregnant one. Behind the uterus is the swelling discovered on previous examination to be tender on pressure. It is rounded and elastic, and extends upwards to a point midway between the umbilicus and pubes. In front of it lies the uterus, the outlines of which can be clearly defined, distinct from but closely connected with the swelling.

The breasts contain colostrum, and there is a well-marked areola round the nipple.

After the chloroform she was very ill with pain in the præcordial region and shortness of breath, but nothing could be found to account for this.

29th December.—Dr Murphy of Sunderland saw the patient in consultation. He made a further examination under chloroform, and passed a uterine probe. His opinion confirmed that of my brother and myself, that it was a case of extrauterine pregnancy. The patient, however, was so ill we all agreed that to operate would kill her, and decided to wait for a few days and see if any improvement in her general condition could be brought about.

She improved somewhat by *2nd January* of this year, and on that day the following operation was performed:—The abdomen was opened in the middle line under the spray. The tumour was found to be covered in front with adherent omentum. It was adherent to the parietes below for the lower half, but on dividing the omentum was found to be free above. Since our last examination the tumour had increased in size and was now on a level with the umbilicus. On introducing the hand into the peritoneal

cavity, it was closely adherent in Douglas's pouch and round the pelvic brim, making it improbable, even not taking into consideration its size, that the cyst could be shelled out. Accordingly the cyst wall was incised after packing the abdominal cavity with sponges. A terrific hæmorrhage followed, which was almost at once arrested by pushing a sponge firmly into the wound. To this the patient undoubtedly owes her life. The placenta was situated over the front of the cyst, and this it was which had been incised. The sponge was left in and the sac stitched to the parietes. The operation was finished by suturing the remainder of the abdominal wound, leaving a drainage tube in the peritoneal cavity. The patient appeared to be little the worse for the operation and soon rallied.

3rd January.—Dressed under the spray. The sponge was gently removed from a sac between the placenta and membranes. Bleeding at once commenced, but was arrested by plugging firmly with gauze.

4th January.—Peritoneal drain removed.

5th January.—Bowels relieved with calomel ($7\frac{1}{2}$ grs.), followed by an enema.

6th January.—Plug of gauze removed and renewed. Very little discharge, no bleeding.

11th January.—As the temperature since the operation has been gradually rising, and patient complains of some pain, a hypodermic needle was pushed into the sac and withdrew fluid. A director was passed along the needle, and along the groove of the director a pair of dressing forceps. By opening the forceps and withdrawing them, the opening was enlarged. About a pint and a half of blood-stained fluid containing purulent flocculi and smelling like liquor amnii escaped, but no foetus. The cavity was stuffed with gauze.

25th January.—In trying to remove a portion of placenta a sharp attack of hæmorrhage came on. Chloroform was given, the whole sac explored, and the foetus (about two months) discovered and removed.

8th February.—The sac has gradually closed up, and the patient is practically well.

VII.—REPORT OF THE ROYAL MATERNITY AND SIMPSON MEMORIAL HOSPITAL, FOR THE QUARTER ENDING 31ST OCTOBER 1887.

By R. HENRY MADDOX, M.B., C.M., M.R.C.S., and G. OWEN C. MACKNESS, B.A. Oxon., M.B., C.M., Resident Physicians.

(Read before the Edinburgh Obstetrical Society, 11th January 1888.)

DURING the quarter there have been 67 intern and 198 extern cases.

INTERN CASES.

Of the 67 women delivered in the Hospital, 39 were primiparæ, and 28 were multiparæ.

The numbers were as follows:—i.-paræ, 39; ii.-paræ, 13; iii.-paræ, 3; iv.-paræ, 2; v.-paræ, 3; vi.-paræ, 3; vii.-paræ, 2; xiii.-para, 1. There was also one woman who asserted that she was a primipara, but who in delivery was found to be an undoubted multipara.

The average age of the primiparæ was 23·125 years, the oldest being 42, the youngest 16. The average age of the multiparæ was 27·715 years, the oldest being 39, the youngest 22.

There were 67 children born—37 being males, 30 females. There was also one abortion (female fœtus), between the 6th and 7th months, in a syphilitic woman. The primiparæ gave birth to 22 males and 18 females. The multiparæ gave birth to 15 males and 12 females. There were 3 cases of premature labour, one at the 8th month, where labour was induced in a woman with a small pelvis; one which came on at the beginning of the 9th month, and one at the 7th month. In the last case the woman had had several dead-born children at the 7th month, after having borne 4 living children at full term, and the placenta showed signs of syphilis.

Average Duration of Labour.—Primiparæ: 1st stage, 14·31 hours; 2nd stage, 1·69 hours; 3rd stage, 13·42 minutes. Longest total labour, 37 hours 10 minutes; shortest total labour, 6 hours 20 minutes.

Average Duration of Labour.—Multiparæ: 1st stage, 9·4 hours; 2nd stage, 47·6 minutes; 3rd stage, 14·7 minutes. Longest total labour, 25 hours 50 minutes; shortest total labour, 2 hours 55 minutes.

The labours are classified as follows:—Natural, 48; laborious, 14; preternatural, 1; complex, 3; abortion, 1.

The vertex presented on 65 occasions as follows:—L.O.A., 43; R.O.P., 20; R.O.A., 2. In one case the occiput remained posterior, but the pelvis being roomy, and the woman a multipara, delivery was effected without any interference; in another case, where forceps were applied, rotation forwards of the occiput did not occur until the head was low down on the perinæum.

Laborious.—Forceps were applied on 16 occasions, 2 high and 14 low; 3 times in multiparæ, and 13 times in primiparæ. Both the high forceps cases were for justo-minor pelvises; in one case, the diagonal conjugate at the brim measured $4\frac{1}{4}$ inches; in the other case, where the diagonal conjugate at the brim was $3\frac{3}{4}$ inches, premature labour was induced between the 7th and 8th months. Of the low forceps cases 3 were for delay in the 2nd stage, due to prolapse of the anterior lip of the cervix; 9 for threatening inertia uteri, due on 6 occasions to the large size of the fœtal head, once to early rupture of the membranes, once to rigidity of the os

uteri, and once to rigidity of the perinæum. They were also applied twice in complex cases, in one of which there were threatening eclampsia, and in the other multiple cardiac lesions.

Preternatural.—In this case the breech presented R.S.A.; the child was premature at the 7th month, and was putrid; after the body had been delivered, the os uteri closed tightly round the child's neck, and the labour had to be completed under chloroform by traction on the child's body and expression. There was also a shoulder presentation, L.A.A., in the second of twins, which was turned.

Complex.—One was a case of twins occurring in a primipara; the first child presented by the vertex, R.O.P., and was a male; the second child, a female, presented by the shoulder, L.A.A., and was turned immediately after the birth of the first one. There was a single placenta with one chorion and two amnions; the cord of the second child was velamentous.

Another case was that of a primipara, aged 22, admitted suffering from intense albuminuria, with great œdema of the face and body generally, and effusion into the pleural and pericardial cavities. She also complained of headache and dimness of vision. There was no history of scarlet fever. She was at once put upon milk diet and ordered a purge, and a mixture containing iron, digitalis, and squills. She went into labour the next evening, and about three hours after the commencement of the pains she developed twitchings of the facial muscles, with spasmodic startings of the limbs, while the eyeballs were rolled continuously from side to side; at the same time she became semi-comatose. She was at once packed in blankets, with hot bottles round her; no pilocarpin was used on account of the œdema of the lungs; chloroform was administered during the pains; syrup of chloral was also given at intervals. The convulsions passed off, and she became quite conscious; the os dilated very slowly, although the pains were strong and regular. As soon as the os was fully dilated forceps were applied and the child delivered. There was no recurrence of the convulsions. During the puerperium the amount of urine increased under treatment with iron, digitalis, and bitartrate of potash, while the œdema and effusions quite disappeared. The albumen in the urine diminished considerably, but did not entirely disappear, although at the end of ten days tube casts, which were present at first, could not be found. Ophthalmoscopic examination of the eyes showed the fundus to be quite normal.

The third case was one complicated with multiple cardiac lesions, and is described in detail by Dr Croom at a previous meeting of the Society.

Abortion.—This occurred in a syphilitic woman between the 6th and 7th months.

Mortality.—Maternal, none; foetal, 6; infantile, 2.

Of the *fœtal deaths*, 1 occurred in a case of high forceps for small pelvis; 2 were dead and putrid in utero in women suffering from syphilis; 1 was dead in utero in a woman suffering from melancholia; 1 occurred where low forceps were applied in an occipito-posterior case, where rotation forwards of the occiput did not occur until the head was low down on the perinæum, and where the anterior lip of the cervix and the posterior vaginal wall prolapsed; another occurred where the labour was delayed, and the cord tightly round the child's neck.

Of the *infantile deaths*, 1 was a premature child, where labour had been induced, and where, although the child was kept in an incubator, it died of debility on the 4th day; the other was a child which died of convulsions six weeks after delivery.

Average Weight of Children.—Primiparæ: male, 7 lbs. 0·45 oz.; heaviest, 9 lbs. 10 oz.; female, 6 lbs. 8·4 oz.; heaviest, 8 lbs. 4 oz. Multiparæ: male, 7 lbs. 15·57 oz.; heaviest, 9 lbs. 8 oz.; female, 7 lbs. 4·91 oz.; heaviest, 8 lbs. 14 oz.

Average Length of the Umbilical Cord.—Males, 23·98 inches; females, 22·56 inches: longest, 34½ inches; shortest, 14 inches.

One case was admitted suffering from melancholia of pregnancy. She was a woman aged 26, who had had twins once and no other children. Her mother was in a lunatic asylum. Three months before admission the condition suddenly developed. She once attempted to poison herself. Her husband stated that he thought the child was alive three weeks before delivery. She was delivered of a dead child, but her condition did not improve while she was in the Hospital, so she was sent on the 14th day to Morningside Asylum.

Rupture of the Perinæum occurred in several cases to a slight extent; all healed by first intention, after being stitched with catgut stitches, except two, one of which was in a woman suffering from severe secondary syphilis.

Ergotin was administered hypodermically in every case, except that of the woman suffering from cardiac complications, directly after the 3rd stage was ended, and in no case was there any post-partum hæmorrhage.

Puerperium.—In most of the cases the temperature never rose above 100° F.; the high temperatures were in nearly all cases due to mammary or alimentary disturbances. There was one case of parametritis, probably septic, which is described more fully below. Sore nipples were extremely prevalent during the quarter, and gave considerable trouble, owing to the inflammation of the breasts which frequently accompanied them. After trying various remedies, the best results of treatment were obtained by washing the nipples with boric lotion, and then painting them with Tr. Benzoini Co. In one case a double mammary abscess developed after sore nipples; the abscesses were opened and drained with strict antiseptic precautions, and healed without giving any further

trouble. There were several scarlatiniform rashes noticed, but of these a separate account has been given in another part of this Journal.

Strict antiseptics were used in every case; corrosive sublimate solution (1 in 5000) being used as a vaginal douche twice daily, except in the albuminuria case, where carbolic acid solution (1 in 40) was used.

The following cases call for special remark:—

Case I.—Mrs M'L., aged 35, v.-para, admitted 1st August 1887. Her first labour in 1879 was a very long one, and the child's head had to be perforated; second labour in 1881, when perforation was also performed; third in 1882, when Professor Simpson performed basilysis; fourth in 1884, when Professor Simpson induced premature labour at the 8th month, the child being alive and healthy now. She last menstruated from 16th December to 19th December 1886; stirrage first felt early in April 1887. On admission the fundus was 2 inches below the ensiform cartilage; length of uterus, $12\frac{1}{2}$ inches. Cavity of vagina small; concavity of sacrum much exaggerated; cervix high up and looking back. Pelvic measurements—inter-cristal diameter, 10 inches; inter-spinous, $8\frac{1}{2}$ inches; inter-trochanteric, 12 inches; external conjugate, $7\frac{1}{4}$ inches; diagonal conjugate, $3\frac{3}{4}$ inches.

On 3rd August a hot douche was given every two hours. On 4th August, at 11.45 A.M., Dr Hart introduced a large metal bougie into the uterus, separating the membranes for 4 inches on one side. This was then removed and a gum-elastic bougie passed in and tied in position. A large Barnes' bag was introduced into the vagina, being removed every two hours in order to give a hot vaginal douche. At 3.30 P.M. the bougie slipped out and was not replaced. At 5.30 P.M. the metal bougie was introduced again and tied in position. At 9.45 P.M. the bougie was found to have slipped out and was not replaced. The os admitted three fingers. There were slight pains in the back. On 5th August, at 10.45 A.M., Dr Hart passed a small Barnes' bag into the cervix, and at the same time a large one was placed in the vagina. At 1.30 P.M. the Barnes' bag in the cervix slipped out and was not replaced. The pains were more regular and stronger. At 9.30 P.M. chloroform was administered, and Dr Hart further dilated the cervix with Barnes' bags. At 10.10 P.M. the os was fully dilated and the membranes ruptured. At 10.25 P.M. high forceps were applied, and the head pulled on to the perineum with some difficulty. The forceps were then removed and the child expressed at 10.45 P.M. The child breathed well and cried at once. Its head was considerably bruised. It was placed in cotton-wool in an incubator at a temperature of 75° F. The dimensions of the head were as follows: O.M. diameter, $5\frac{3}{8}$ in.; O.F., 5 in.; S.O.B., $3\frac{1}{2}$ in.; Bi-P., $3\frac{1}{2}$ in.; Bi-T., $2\frac{3}{4}$ in. Length of child, 18 in.; weight, 5 lbs. 4 oz. On 6th August, morning temperature, 99° F.; pulse, 84. Evening

temperature, $99^{\circ}4$ F.; pulse, 108. On 7th August she was feeling well; lochial discharge moderate and sweet; temperature, $102^{\circ}8$ F., and pulse, 112 in the morning. Per vaginam no local pain or tenderness. Uterus was douched out twice. The baby was being fed on peptonized milk and kept in the incubator. At mid-day, on 8th August, the temperature was $103^{\circ}8$ F. and pulse 120. Ten grs. of antifebrin were given, and brought down the temperature nearly two degrees in two hours. On 9th August the child died suddenly, apparently of weakness. The patient's temperature continued to rise to nearly 103° F. every evening, while it was almost normal in the morning. The pulse varied between 98 and 120. There was no pain on palpation over the abdomen nor per vaginam, but the anterior lip of the cervix was much swollen and bruised. The uterine douche was repeated night and morning until 13th August, when the temperature had sunk to normal and remained there, while the pulse was about 78. From this time she made an uninterrupted recovery, and was dismissed on 26th August.

CASE II.—E. S., i.-para, age 30. Admitted 4th August; confined on 5th August 1887; presentation vertex; position L.O.A. After the birth of the head, the right hand came down with the shoulders and tore the perinæum, requiring three catgut stitches. She passed her urine on the first day. On the third day \mathfrak{z} j. of Henry's solution was given without producing any motion; but on the fourth day the bowels moved freely after \mathfrak{z} ss. of castor oil. In the evening the temperature was found to be $104^{\circ}6$ F. and the pulse 132. Next morning it fell to $102^{\circ}2$ F., but rose again in the evening to $103^{\circ}4$ F., the pulse remaining over 120. She was ordered 1 minim of tr. aconiti every quarter of an hour. After five doses the temperature had fallen considerably, but the heart was so weak that the aconite was discontinued, and one granule of digitaline thrice daily substituted. The uterus was also douched on this and the following day; the discharge was scanty but quite sweet. On 10th August the temperature was over 104° F., and 10 grains of sulphate of quinine were given, causing a fall of nearly three degrees. On 11th August, when the temperature was $104^{\circ}2$ F., 10 grains of antifebrin were administered, causing a fall of four degrees in five hours, and no rise occurred until nine hours after the drug was given. On examining per vaginam, a large deposit was found in the left lateral fornix, with considerable tenderness over the left iliac fossa. A large blister was applied over this region, and frequent hot douches ordered. She was ordered \mathfrak{z} ss. of brandy every three hours, 1 granule of digitaline thrice daily, and 15 minims of tr. ferri muriat. every four hours. An evening rise of temperature to about 103° F. persisted, while it fell to about 100° F. in the morning. Whenever it rose above 103° F. 10 grains of antifebrin were given, and invariably caused a fall, which persisted for some time. The pulse remained over 100 and was very

weak. As she had no milk, the baby was put on the bottle on 14th August. On 15th August, at 9 A.M., the temperature was 104° F.; 20 grains of salicylate of soda were given; the temperature continued to rise, and at 5 P.M. it was 105° F.; the salicylate of soda was repeated, but at 7 P.M. it was still 105° F.; ten grains of antifebrin were then given, and at 12 P.M. it was 100°·6 F. She was ordered 10 grains of benzoate of soda thrice daily. This was continued for a week. Her condition remained much the same until 26th August, when she developed severe vomiting and diarrhoea, which lasted for three days, while the temperature remained at about 102° F. morning and evening; this was treated with hot fomentations and opium. On 31st August the temperature became normal, and remained nearly so, although it still showed a slight evening rise. On 10th September menstruation returned, and lasted for four days. On 19th September the baby, which had suffered from severe diarrhoea for some time and had gradually got weaker, although all sorts of nourishment had been tried, died of convulsions. On 22nd September she was sent into Dr Croom's Ward, Royal Infirmary, where she remained about a fortnight, and was then dismissed cured.

EXTERN CASES.

There were 198 patients attended at their own homes. Of these 39 were primiparæ, 159 multiparæ.

There were 195 children born (5 cases of twins). Of these, 106 were males and 89 females.

Labours are classified as follows:—Natural, 161; laborious, 14; preternatural, 7; complex, 9; abortions, 7. Of the above, 8 were premature.

Of the vertex presentations, the positions were: L.O.A., 166; R.O.P., 8; R.O.A., 4; L.O.P., 1. In 6 cases the position was not ascertained.

Of the *laborious labours*, 1 was a case of tedious labour, owing to the right hand coming down in front of the head. Low forceps were applied in 8 cases for inertia uteri with exhaustion; in 2 cases for impaction of the anterior lip of the cervix; in 1 case for hæmorrhage during the second stage; and in 1 case for non-rotation forwards of the occiput in an occipito-posterior case. High forceps were applied in 1 case for justo-minor pelvis complicated with mitral stenosis and prolapsus funis.

Of the *preternatural labours*, 1 was a knee L.S.A.; 5 were breech L.S.A.; 1, R.S.A.; and 1, L.S.P.

Of the *complex labours*, 5 were cases of twins, which presented as follows: (1) and (2), both vertex L.O.A.; (3), vertex L.O.A. and vertex R.O.A.; (4), vertex, position not ascertained, and breech R.S.A.; (5), breech and vertex, positions not ascertained. One a case of accidental hæmorrhage at the seventh month in a breech

case; 1 a case of eclampsia, described below; 1 a case of post-partum hæmorrhage; 1 a case of adherent placenta, with hæmorrhage, where the placenta was removed $2\frac{1}{2}$ hours after the birth of the child, the os having contracted considerably.

Of the *premature labours*, 1 was at eight and a half months; 1 at the eighth month; 5 at the seventh month; and 1 at six and a half months. One of these was a case of twins at the seventh month; in 2 cases low forceps were applied for inertia uteri; in 2 cases the breech presented.

Of the *abortions*, 4 were at the fourth month; 1 at three and a half months; 1 at the fourth week; and 1 was not ascertained.

Mortality.—Maternal, 3; foetal, 21; infantile, 2.

Of the *maternal deaths*, 1 occurred in the case of eclampsia detailed below; 1 was from acute pneumonia on the third day after delivery; and 1 in a case of abortion complicated with mitral stenosis, which has already been reported by Dr Hart.

Of the *foetal deaths*, 7 were the abortions above mentioned; 3 were syphilitic, 1 of these being at the sixth month, 1 at the seventh month, and 1 at full term; 3 were in breech cases at full term; in 4 cases the placenta was fatty, and in 1 of these it was much hypertrophied, weighing 3 lbs. 7 oz., while there was also hydramnios causing labour to come on at the eighth month; 1 occurred in case of justo-minor pelvis complicated with mitral stenosis and prolapsus funis; 1 was premature at the seventh month; 1 was a second twin and premature; 1 occurred during a normal labour.

Of the *infantile deaths*, 1 was a child born by the breech, which died almost immediately; the other was a premature twin, which died a few hours after birth.

The following case calls for special remark:—M. B., i.-para, age 18, confined on 27th August 1887. She was quite well until a week before delivery, when she complained of difficulty and pain on micturition, with pain in the lumbar regions posteriorly. Later she suffered from frontal headache, but no dimness of vision or œdema were present. She had had considerable mental worry. The labour progressed normally until 6.10 A.M., when she had a convulsion. At 6.20 A.M. she was extremely restless but conscious. The child was born alive soon after. About 3ij. of urine were drawn off, and contained a mere trace of albumen. Later she became more restless, requiring force to keep her in bed, and was apparently in a hysterical condition. After delivery she had two convulsions, and then no more until 2 P.M., when she had three more, and then several during the afternoon. Digitalis and iron were given in the morning and milk diet ordered; chloral was also administered. At 7 P.M. Dr Hart saw her, and ordered chloral and bromide; the condition was thought to be hysterical. During the night she had a succession of fits, which were more eclamptic in character, and recurred fairly regularly every half-hour. On 28th

August some urine was drawn off and found to be loaded with albumen. She had already passed a large quantity of urine in the bed unconsciously; there had been very little discharge from the uterus; no œdema was present. At 1.45 P.M. she was packed in blankets with hot-water bottles, and gr. $\frac{1}{2}$ of pilocarpin administered hypodermically. Sweating became profuse, but the pulse failed, and death occurred at 2.10 P.M. She had been completely unconscious for about nine hours before death. On post-mortem examination the kidneys showed some contraction of the cortex, while the capsule was adherent in places and the pyramids apparently fatty. The membranes of the brain were also considerably congested.

Part Second.

REVIEWS.

Early English Text Society. Extra Series LII. A Dialogue against the Fever Pestilence, by William Bullen, from the Edition of 1578, collated with the Earlier Editions of 1564 and 1573. Edited by MARK W. BULLEN and A. H. BULLEN. Part I., The Text. London: Published for the Early English Text Society by N. Trubner & Co., 57 and 59 Ludgate Hill: 1888.

THIS is a dialogue. The interlocutors are twelve persons,—Mendicus, Civis, Uxor, Medicus, Antonius, Roger, Crispinus, Avarus, Ambodexter, Mendax, Mors, Theologus.

Is is full of interest for us as medical men—for the motive of the whole play is the plague. Antonius, a rich man, dies of it after a most complicated and curious dialogue with Medicus the physician and Crispinus the apothecary. In it Medicus expounds to Antonius his views as to its origin, nature, and treatment, and gives Crispinus a whole host of prescriptions, complicated and fanciful, but not unlike what we occasionally meet with still. Then Civis, Uxor, and Roger, their man, ride off to the country to escape the pestilence, and meet with many strange and amusing adventures at the inns on the road. At last Mors comes in, strikes Civis, Uxor, and Roger with fear. Civis, on the departure of Mors for a little season, gets Roger to fetch Theologus, who gives Civis excellent counsel, and then Civis dies.

Medicus is a shrewd fellow, an agnostic, a bit of a naturalist, but no fool. Antonius has asked him how all this philosophy of his bears upon physic, and gets the following answer, which might have been spoken at Glasgow in this August 1888,—“Most chiefly, for where as the philosopher doth leaue, then the Phisition doth begin; that is, he must be first a good natural philosopher; he must haue the knowledge of tymes and seasons, and bee acquainted with complexions of men, obseruyng the nature of thynges and theclimates

under heaven, with the course of the sunne, moone, and starres, ayre, and diet," etc. (Pp. 32, 12-16.)

On the cause of the plague is he not up to date when he says,—The pestilence comes "moste chiefly to them vnder the place infected, then to sluttishe, beastly people, that keepe their houses and lodynges unclean, their meate, drinke, and clothyng moste noysome, their laboure and traile immoderate, or to them whiche lacke prouident wisdom to prevente the same by good diet, ayre, medicine, etc., or to the bodies hotte and moyste, and these bodies do infect other clean bodies," etc. (Pp. 37, 16-21.)

Could Dr Littlejohn have put the case better? Avarus and Ambodexter are learned in the law, and are left trying to make money out of Antonius, while Mendax is a traveller whom they pick up in an inn, and Theologus gives excellent ghostly counsel.

Early English Text Society. Extra Series LIII. The Anatomie of the Bodie of Man, by Thomas Vicary, Sergeant of the Surgeons to Henry VIII., Queen Mary, Edward VI., and Queen Elizabeth; Master of the Barber-Surgeons' Company; and Chief Surgeon to St Bartholomew's Hospital, Lond., 1548-62. The Edition of 1548, as re-issued by the Surgeons of St Bartholomew's in 1577; with a Life of Vicary, Notes on Surgeons in England, Bartholomew's Hospital, and London in Tudor Times; An Appendix of Documents and Illustrations. Edited by FREDK. J. FURNIVALL, M.A., Hon. Dr PHIL, and PERCY FURNIVALL, a Student of St Bartholomew's. Part I. London: Published for the Early English Text Society by N. Trubner & Co., 57 and 59 Ludgate Hill: 1888.

THOMAS VICARY must have been a very fine fellow, wise, genial, shrewd, and successful. He probably was a good surgeon according to the lights of the days he lived in, but he was a poor anatomist, and this book of the *Anatomie of the Bodie of Man* is a very poor production indeed, full of theories and odd classifications of what he calls the eleven simple members, it aims more at structural than regional anatomy, and probably he had few chances of dissection. We so find in a later part of the work, that in 1540 Vicary and others applied for a felon's bodye for dissection, and got a permit to use four. If they did so, the result, as shown in Vicary's book, was not a great one, and it contrasts most miserably with the magnificent work of Vesalius, who was his contemporary. Vicary was a surgeon first and an anatomist afterwards; indeed, the very first chapter of his *Anatomy* is devoted to an exposition of the nature of surgery and the duties of a chirurgion, including his complexion, figure, hands, nails, morals, and religion. Some of the essentials are very quaint, "that his body be not quaking, and his hands stedfast, his fingers long and smal and not trembling; that he speake congruitie in Logike;

that he be no spousbreaker nor no drunkarde ; that he deceive no man with his vague promises, for to make of a smal matter a great, because he would be counted the more famous. Likewise they shall geue no counsayle except they be asked ; they may not chide with the sicke, but be always pleasant and mery. They must also be gracious and good to the poore, and of the rich take liberally for bothe, and see that they never prayse themselves. Likewise that they despise no other chirurgion without a great cause, for it is meete that one chirurgion should love another, as Christe loveth us all." Vicary was no fool.

Bound up in this volume are a number of most interesting documents relating to the foundation of St Bartholomew's Hospital. The Ordre of the Hospital of S. Bartholomewes in West Smythfielde in London might serve as a perfect model of the constitution of a great hospital. It contains—I. Most particular instruction to the Governours and their President, to the Threasaourour, the Surueiours, Almoners, and Scrutyners ; II. To the Officer of the Household, including in the following order, Clerke-Hospiteler, Butler, Matrone, Sisters, Chirurgiens, Porter, Beddilles, and visitour of Newgate. III. The estimate of the Charges and Expences of the Hospital. IV. The dayly Service for the Poore, a Prayer to be sayd at their delyuerie out of this House, and a Passporte for the Poore at their delyuerie.

The charges to the officials are not only full of wisdom and good sense, but written in bold Saxon English, with a fine flavour both of morals and religion, manly and charitable. One very odd sentence in the orders of the chirurgiens shows that even in Tudor times there was a tendency to get patients of the better class into the house meant only for the sick poor. Here is the verdict on such plans,—“Also we utterly forbidde and commande you that ye by no coloure, pester, or burden this house with any sick or diseased persone, for the curyng of which persone ye before have received a somme or sommes of money upon pain to be dismissed thys house.” Vicary may have had a hand in the Ordre, but from differences in style, and especially in spelling, he was certainly not the chief author.

For all who love the past and believe in keeping the memory green of our ancestors, this will be a most charming book.

On Epidemic Influences. On the Epidemiological Aspects of Yellow Fever. On the Epidemiological Aspects of Cholera. By ROBERT LAWSON, LL.D. London: J. & A. Churchill: 1888. Pp. 95, two maps and two diagrams.

THIS volume contains four lectures delivered before the President and Fellows of the Royal College of Physicians, being the first series of lectures under the bequest of the late Dr Gavin Milroy. Dr Milroy had taken a deep interest for years in epidemiological

questions, and was most anxious that the study of such subjects as the geography of disease, the exact chronology of the appearance and persistence of those diseases which are only of occasional and temporary occurrence, and the part which contagion plays in the development and spread of various maladies, should be stimulated by his bequest. His desire will be fulfilled if the succeeding series of lectures are as valuable and suggestive as those contained in the volume now before us. Although one may not agree with all the theories advanced by Dr Lawson, yet one cannot read this book without having thought stimulated and renewed interest awakened. It is impossible in the space at our disposal to do more than refer to a few of the points to which the author has evidently given a large amount of thought and study, enriched by practical experience. In the first two lectures, in which Dr Lawson elaborates his views on epidemic influences, he states his belief that epidemics become developed at various points from time to time, and pass uniformly northward until they finally disappear. He finds that the spread of such outbreaks, besides embracing a considerable space of longitude, gives rise to epidemics of various kinds in odd or even years respectively. This development and spread, he opines, must be due to the action of some natural force, and when studying the areas upon the map, he found that he could best define the position of the influence, approximately at least, by referring it to lines of equal magnetic dip (isoclinical lines). For instance, with regard to fever, he gives a number of illustrations which go to show that there is a factor "which determines its appearance at points more and more to the northward in successive years; that this factor revives periodically every second year, or at some multiple of two years, passing like a series of waves over a more or less extensive portion of the earth's surface." These waves he names pandemic waves. "Of their intimate nature nothing is known at present, but, as their position from year to year seems defined, approximately at least, by lines of equal magnetic dip, it is inferred they may be dependent in some way on magnetism. There is at present no explanation of the reason why the pandemic factor should proceed from south to north, nor why it should have a two yearly period, and lead to a development of disease in some zones in a year with an odd number rather than an even one, or *vice versa*."

This subject is a most interesting and important one, and Dr Lawson's views should certainly receive the careful attention of all climatologists.

The remaining two lectures on the epidemiological aspects of yellow fever and cholera are well worthy of a careful perusal; the subjects are treated of in a fresh and masterly style; they contain a great deal of information, and the conclusions which the author draws are, we think, clearly deducible from the facts he so lucidly states.

A Practical Treatise on Diseases of the Skin, for the Use of Students and Practitioners. By JAMES NEVINS HYDE, A.M., M.D., Professor of Skin and Venereal Diseases, Rush Medical College, Chicago, etc. Second edition, thoroughly revised and enlarged. London: J. & A. Churchill: 1888.

Diseases of the Skin, their Description, Pathology, Diagnosis, and Treatment. By H. RADCLIFFE CROCKER, M.D. Lond., F.R.C.P., Physician to the Department for Diseases of the Skin in University College Hospital, etc. With 76 Illustrations. London: H. K. Lewis: 1888.

THESE two volumes, which have reached us simultaneously, present considerable similarity in size, in arrangement, and in the manner in which their subject-matter is treated, and in consequence may fairly be reviewed together.

Dr Hyde has had the advantage which a second edition affords of adding, eliminating, and correcting, as well as of benefiting by the criticisms called forth by the work on its first appearance. He has made a praiseworthy endeavour to compile a useful manual, yet the result of his labours can scarcely be said to rise above a respectable mediocrity. This is due partly to an inherent heaviness of style, and a striving after elaboration in details which becomes wearisome and defeats its end; and partly to a want of originality, and to an unnecessary multiplication of the opinions of others, without, in many cases, indicating with sufficient distinctness the one he personally inclines to. The expressions are frequently inflated and redundant, and to a reader on this side of the Atlantic, the Americanisms which strike the eye and grate on the ear seem uncouth and peculiar. The special value of the treatise will be to the dermatologist rather than to the general practitioner, to one capable of selecting from the abundant supply of remedies offered to his choice the one likely to be suited to his case, but which are not seldom massed together in a way somewhat apt to mislead the uninitiated. At the same time there are many valuable hints of a practical nature, and sage observations to be found scattered throughout the pages. The following remarks on fashionable spas are worth quoting:—"Unfortunately, both in this country and abroad, many of the health resorts are peopled by unscrupulous charlatans, with a myopic tendency to attribute all the benefits to be derived from these sources to the medicinal virtues of this or that particular spring, aided always by treatment according to their own peculiar methods. Many patients affected with disease of the skin are thus made worse by a temporary residence at noted health resorts, and, therefore, it is often the case that a visit to the seashore, the mountains, or any healthful place in the country, proves conducive to far greater practical results." We may refer also to some observations on the use or rather the abuse and comparative inefficacy of arsenic in skin diseases. "It is safest to

conclude, first, that arsenic, instead of being one of the earliest, should be one of the last remedies selected in the management of cutaneous diseases by the general practitioner; second, that, when thus selected its value will probably prove greatest, if the eruptive lesion be superficially seated, generalized, diffused, or in evident association with neurotic symptoms; third, that in any case its failure should not be regarded as definite, if only Fowler's solution has been administered. Even in pemphigus, psoriasis, chronic eczema, and lichen ruber, where the remedy has been thought to possess special efficacy, it has in cases conspicuously failed." From the publisher's point of view, the type, paper, and general get up of the volume are all, as is usually the case with works which emanate from America, alike admirable, and the numerous illustrations are well chosen, while a number are original.

Dr Crocker's treatise in its terra cotta binding forms an exceedingly handsome volume, the clear and open character of the type render its perusal easy, while the evident earnestness of its author, and the care which he has taken in its preparation, enlist our interest in its contents. The classification adopted is Hebra's, modified to accommodate it to some additions and changes become necessary since his time. An excellent feature has been introduced into it to a greater degree than heretofore; which consists in placing opposite the name of each disease its most prominent primary lesion. This will be found of great value to those less experienced, in facilitating diagnosis. The descriptions of the morbid conditions included in the scope of the volume are remarkably clear, terse, and to the point, no unnecessary detail being introduced. The paragraphs devoted to morbid anatomy are printed in smaller type than the remainder of the text, as being, to many who will use the work, of secondary importance. To the pathology, indeed, Dr Crocker has himself largely contributed from his own personal investigations. A short but good description is given of erythema scarlatiniforme, a simple enough ailment in itself, but, from the difficulty of its exact differentiation from true scarlet fever in many cases, it rises to a position of importance. The point on which Crocker lays most stress is, that unlike scarlet fever it does not begin in any special position, while the eruption is commonly sharply defined in places, especially beside the nose, leaving a narrow tract of, by contrast, preternaturally white skin between the two hyperæmic areas. If this feature can be relied on, it must prove valuable, since desquamation is usually copious after the subsidence of the rash in the erythema. Hydroa as distinct from the polymorphic erythemata is allotted a place after pemphigus. The predominance of the bullous form of lesion, and the presence of itching, are the two characteristics which are insisted on as sufficient to justify the separation, but as Crocker includes in hydroa the dermatitis herpetiformis of Duhring, in which the lesions vary within a wide range, the position taken up must be looked on, for

the present at least, as tentative. When speaking of the etiology of eczema we are pleased to observe that Dr Crocker does not encourage the exaggerated view held too commonly, that gout is almost necessarily a cause. He recommends turpentine internally in uncomplicated cases of eczema (though, curiously enough, apparently by a slip of the pen, on page 37, he says it is useful in complicated cases), where there is no irritability of the alimentary canal or urinary organs. Indeed, turpentine is rather a favourite with him, for he speaks of its utility both internally and externally in psoriasis. His suggestion of counter-irritation over the vasomotor centre of the affected part in obstinate cases of eczema is already well known, and its value recognised. Pediculi are said to be a very common cause of impetigo contagiosa; of their frequent association with the fully developed disease on the scalp there is no doubt, but the exact part played by these parasites in its origination is less certain. Crocker separates lichen scrofulosus from lichen circinatus, and pityriasis rosea from both, while he accepts two distinct varieties of lichen ruber—planus and acuminatus. On all these points there is need of simplification. A very good description and an excellent illustration of the morbid anatomy of lichen pilaris is given. The section on drug eruptions is concise and well expressed, and will be found to give all the principal varieties, treated both from the side of the drug as inducing the eruption, and from the side of the eruption as caused by the particular drug. Crocker believes in the communicable nature of molluscum contagiosum, and in its origin from the hair follicles rather than from the sebaceous glands. On a general review of this valuable work, one scarcely knows how to laud sufficiently the care which has been taken to secure accuracy of statement, and to render it as complete as possible, not only with regard to diseases more or less frequent here, but equally so to those of other and distant climes. We have nothing but praise for this most comprehensive, original, and admirably written treatise.

The Surgeon's Handbook. By Dr FREDERICK VON ESMARCH. Translated from the Third German Edition by B. FARQUHAR CURTIS, M.D. With 647 Woodcuts. An entirely new Edition. London: Sampson Low, Marston, Searle, & Rivington, Limited: 1888.

THE former edition of this book won for itself so good a reputation that the translation of this latest edition has been awaited by many with some impatience. The features of special value are, the short and clearly expressed text, the number of illustrations, and their teaching nature, the intention being that the book should be a guide in war time, when leisure to consult long treatises is out of the question. It is evident that students and busy practitioners are often in this same predicament, and hence value the book in peace time no less than their military brethren do in war. The

coloured plates of the last edition have been replaced in this one by woodcuts, which express as much and take less room.

The author has been at pains to keep his book up to date, and dwells with special emphasis on the necessity for antiseptics in gunshot wounds, and on the best means for carrying it out on the field.

Although the illustrations serve their purpose very well, a large number of them offend the eye from want of more exactness in drawing. Their size, too, might be apportioned with advantage to their importance. Some of the drawings of simple pieces of apparatus are unnecessarily large, as, for instance, that of the drainage-tube on page 19, and of the safety-pin on page 60. It cannot, however, be said that any really important subjects have been drawn too small. Fig. 410, page 222, seems to have been accidentally reversed.

It is noteworthy that, under the head of Anæsthetics, chloroform alone is spoken of, and that ether is not mentioned. Whatever this omission may be due to, and however much we would agree as to the general advantage of chloroform over ether, there must be many occasions in war time when the cardiac stimulation of ether during anæsthesia will be of great service.

In the first part, treating of bandages and appliances, the section on splints is of the greatest value.

The second part gives a clear and, from the illustrations, almost diagrammatic account of the chief operations for ligature, and of the chief amputations and excisions. We are disappointed, however, to find that Syme's amputation ("disarticulation of the foot according to Syme") is described as having the plantar incision "from the apex of one malleolus to that of the other," instead of from the tip of the outer malleolus to the point opposite it on the inner side. As, however, the method advocated of dissecting out the os calcis from above, although also not Syme's, is better adapted than his (from below) for the malleolus-to-malleolus incision, the operation described will be successful, though not exactly "according to Syme." Carden's amputation is mentioned, but not described sufficiently either to refresh the memory or help a beginner.

The book taken as a whole is, however, so excellent that we feel certain that the translation of this edition will be greatly appreciated and rapidly bought up in this country.

The Movements of Respiration and their Innervation in the Rabbit.

By MAX MARCKWALD, M.D., Physician at the Baths of Kreuznach. Translated by THOMAS ARTHUR HAIG, Student of Medicine, University of Glasgow, and Revised by the Author. With an Introductory Note by JOHN J. M'KENDRICK, M.D., LL.D., F.R.S., Professor of Physiology, University of Glasgow. Glasgow: Blackie & Son: 1888.

It is somewhat difficult to understand the *raison d'être* of this translation of Marckwald's admirable paper, "Die Athembewe-

gungen und deren Innervation beim Kaninchen," which appeared in the *Zeitsch. f. Biologie*.

The physiologist will certainly prefer to go directly to the original paper, and thus to avoid the many ambiguities introduced by the translator; and while we thoroughly agree with Dr M'Kendrick that the paper "ought to be known in this country, more especially by physicians," we fear that what we have already said in regard to the physiologist applies here also. Physicians who are sufficiently scientific to make use of such a piece of work will undoubtedly rather consult it in the German.

In regard to the ordinary practitioner, we greatly fear that the physiological education afforded the student of medicine, even in our much-vaunted Scottish universities, is not such as to give the practical familiarity with the methods of research, or to develop the critical acumen necessary for the appreciation of such a piece of scientific investigation.

Of the great value and originality of Marckwald's research it is superfluous to say much. His paper is full of the most interesting and suggestive matter. The admirable manner in which he works out the influence of the action of the various centripetal nerve-paths upon the respiratory centre is especially worthy of commendation. The demonstration of the tonic action of the vagus as a "liberator" of the regular respiratory rhythm, and of the manner in which this function is undertaken by the higher brain tracts after exclusion of the vagus, are likewise matters of prime importance, while his elucidation of the nature of the inhibitory action of such nerves as the glosso-pharyngeal, the superior laryngeal, and the trigeminus, must be regarded as of great value. The marked periodic type of breathing, so suggestive of Cheyne-Stokes respiration, induced when the region of the *alæ cinereæ* are injured, cannot fail to be of interest to the physician.

We cannot help thinking, that while Marckwald is right in his contention that Langendorff and Wertheimer have entirely failed to prove the existence of true respiratory centres in the spinal cord of mammals, that he nevertheless somewhat tends to overlook the possible importance in the genesis of respiration of the peculiar rhythmic spinal discharges observed by these experimenters.

As Professor M'Kendrick says in his introduction,—“The paper is an excellent example of the true experimental method, guided by sound knowledge of the work of others, and checked by severe criticism of results.”

In praise of the translation little can be said. It appears to be fairly accurate, but it is so absolutely without artistic merit, and is in many places so utterly ungrammatical, that it cannot fail to repel the educated reader.

The publisher has done his share of the work admirably, and the clear type and capital figures should go far to render the book a success.

Internal Urethrotomy. By JOHN CROFT, F.R.C.S. Reprinted from Vol. XVI. St Thomas's Hospital Reports.

THIS little pamphlet has been written to commend the use, in cases of tight stricture, of the filiform bougies, which are made to screw on to a catheter or urethrotome as may be required. This instrument Mr Croft calls a *bougie conductrice*. He very honestly admits that the small flexible instrument is not always more successfully passed through a stricture than the rigid one; but he considers it "a safe instrument in the hands of a timid surgeon."

Urethrotomy, as recommended by Mr Croft, is performed as follows:—First, the *bougie conductrice* is passed through the stricture, if possible; then the urethrotome (Teevan's) is screwed on to the bougie and passed down to the stricture, and pressed firmly against it. The cutting blade is then projected a very short distance, and the stricture is notched on the roof of the urethra. The guard is then placed over the blade, and the now blunted instrument pressed against the stricture. As the blade and guard are wedge-shaped, the instrument is thus made to act as a dilator. The blade may be again used to notch the stricture, and the guard employed as a dilator once more. In this way by degrees, partly by cutting and partly by dilating, the instrument is made to pass right through the stricture. The urethrotome is then withdrawn and screwed off the bougie. To this latter, which has been left in the urethra, is attached a full-sized catheter, and the bladder emptied.

The whole operation takes only a few minutes, but enables the surgeon at once to dilate the urethra from $\frac{1}{2}$ size or less up to 10 or 12 English. The further advantages of this operation are, that there is no risk to life (Mr Croft has had no deaths in 50 consecutive cases), and that the patient may get up and go about a few days after the urethrotomy.

The Electric Illumination of the Bladder and Urethra. By E. HURRY FENWICK, F.R.C.S. London: J. & A. Churchill: 1888.

MR FENWICK has supplied us with a useful handbook containing a history of endoscopy, a description of the various instruments employed and how to use them, and also an account of the cases in which endoscopy will be useful as an aid to diagnosis.

The facts stated by Mr Fenwick are a marvellous instance of the rapid advance of modern science, and the practical adaptation of scientific discoveries to the treatment of disease, that are characteristic of the present age. "The cystoscope of 1879 (says Mr Fenwick) has the same relation to that of 1887 as the 'Puffing Billy' of Stephenson to later locomotives; and though, doubtless, we have not reached its perfect completion, yet it is sufficiently practical to become an indispensable factor in the diagnosis of obscure diseases of the urinary tract."

The book is at present an indispensable one to all practical

surgeons, for bladder cases do show themselves now and then which present great difficulties in regard to diagnosis, and whose peculiarities might at once be cleared up by a view of the interior of the viscus.

The Natural History and Epidemiology of Cholera, being the Annual Oration of the Medical Society of London, May 7th, 1888. By Sir J. FAYRER, K.C.S.I., LL.D., M.D., etc. London: J. & A. Churchill: 1888. Pp. 71.

ANY one desiring a brief review of the history, habits, method of diffusion, geographical distribution, relation to climate, seasons, meteorological conditions and locality, of cholera, its etiology, its effects on the human race, and, finally, the methods which experience teaches are most effectual in mitigating or preventing it, will find their requirements satisfied in Sir Joseph Fayrer's interesting oration. They will, however, probably regret that the scope of the lecture has prevented more than an indication of the most prominent points of each of these subjects. It is quite out of the question to deal comprehensively with such a vast subject in the space of 71 pages, and it is to be noted that the pathology and therapeutics of cholera are not dwelt upon. It would have been very interesting to know Sir Joseph Fayrer's present views upon these points of increasing practical importance. The author's remarks on the precautionary measures, general and special, against cholera, are at once clear and comprehensive, and the greatest attention should be paid by all interested in sanitary science to the following paragraph which we quote in full:—"The cholera, which has been in Europe for the last five years, has now apparently died out, or at all events is dormant; but it may appear again, and wherever it can find a fitting nidus, *i.e.*, the presence of bad local conditions, all the quarantine and inspection in the world will not keep it out; that such bad local conditions exist in towns, streets, and houses, is proved by the reports of the sanitary associations, and of sanitary engineers, who deal with these matters in localities where Government officials can exercise no interference. The measures for their removal are simple enough, if only the public can be brought to believe in the unseen but removable dangers which exist within, around, and beneath their houses. This is a great sanitary defect of the present day, and cries loudly for reform; upon this may depend whether pestilence shall find footing, or shall leave the locality unscathed."

Guide to the Health Resorts in Australia, Tasmania, and New Zealand. Edited and compiled by LUDWIG BRUCK. Sydney: L. Bruck. London: Baillière, Tyndall, and Cox: 1888. Centennial Edition, pp. 5, and 179, and Appendix 4.

WHEN a patient consults a medical man as to the climatology of

any given place, it is always of advantage to both patient and doctor should the latter know something of the place in question. Such a knowledge may be readily gained, in so far as Australasia is concerned, by reference to the small book which has been admirably edited and compiled by Mr Ludwig Bruck. In it will be found a concise but complete and accurate description of upwards of 200 health resorts, with the analysis, temperature, and special indications for the use of nearly a hundred mineral springs. In addition to this information we find a condensed, but at the same time readable, description of the climatology of the Australian Colonies, and the editor has likewise added a classified list of the health resorts, named according to their therapeutic indications. That the book is not solely intended for the medical practitioner is proved by the fact, that in the Appendix a definition is given of all the technical terms which appear in its pages, as also a list of weights and measures, the temperature of baths, and the various thermometric scales. With regard to the plan adopted by the editor in his description of each health resort, we may say that it follows the lines of Bradshaw's *Climatic Health Resorts*. We have tested the information given with regard to a number of places, and find it to be on the whole very reliable, and we have no doubt that it will be useful to practitioners, for the great differences in temperature, owing to the wide range of latitude under which these colonies lie, is very apt to be forgotten when one recommends a patient to go to Australasia in search of health.

Sketches of Hospital Life. By HONNOR MORTEN. London : Sampson Low, Marston, Searle, & Rivington, Limited : 1888.

THIS little book of only 74 short pages contains six chapters dealing with hospital life from a non-professional point of view. Probably written by a lady probationer, who did not outstay her month of trial, the information given is very thin and not very accurate, except possibly in some domestic details. Thus she finds "it is not unusual for a surgeon and his students to leave a ward after having had all wounds, etc. (*sic*) uncovered without replacing a single dressing." Again, we have a surgeon who operates on a child without chloroform because it had had a big dinner, and he had not time to come back later. Again, we have the charming student, adored by the children, and who cannot bear to see the probationer carry the milk-pail, and who, of course, dies of small-pox in the last chapter. With all its absurdities, it is a pleasantly-written little book, with no harm meant. The best chapter is one supposed to be written by a crusty old bachelor, who had, after a run over, been taken to hospital. It tells rather well how the ward discipline struck him ; but even that chapter is spoiled by the appearance of the inevitable beautiful nurse, with the queenly head and the bright smile, too well known to readers

of fiction. She subjugates him of course, and on his visits to the hospital after he is well he envies the patients who are nursed by Nurse Lorna.

Report of Medical Missionary Work in Manchuria. By D. CHRISTIE, L.R.C.S. & P. Edin. 1888.

DR CHRISTIE is evidently doing excellent work. Last year he made upwards of 12,000 visits, and had 267 patients in hospital. He performed upwards of 600 operations, a fourth of which were on the eye and a third on the teeth; 130 abscesses were opened. This represents a kind of work that must impress the minds of natives, and at the same time relieve a great amount of suffering. The importance of such operations in gaining the confidence of the heathen is evident from a statement by Dr Christie. He says that if a remedy does not at once benefit a patient "it is set aside as unsuitable, or as disapproved of by the gods." Opium smoking, we are told, is prevalent, and the cause of great misery among all classes. Dr Christie says that the well-to-do Chinaman does not suffer in bodily health so much as the poor man, but all alike suffer morally—"the opium-smoker cannot be trusted in word or deed."

Part Third.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION LXVII.—MEETING VIII.

Wednesday, 2nd May 1888.—Dr JOHN SMITH, *President, in the Chair.*

ORIGINAL COMMUNICATIONS.

1. *Dr Smart* read his CASE OF MULTIPLE NEURITIS, which appeared at page 19 of this Journal.

The President said he did not know, if the tissues of the nerve fibres themselves were disintegrated, how their function could be restored. He could understand it if only the tissues surrounding or connecting the nerve bundles were affected, but if the histological elements of the fibres themselves were replaced by degenerated structures, it was not easy to see how the nervous power could be restored. It seemed more probable that any remaining elements took on increased action than that new ones were formed.

Dr James Ritchie remarked that from the notes read it would appear that Dr Smart had not seen this interesting case till somewhere about two months after the disease commenced. As *progressive multiple neuritis* usually begins as an acute affection,

Dr Ritchie desired to know if in this case there was an acute stage? Was there any tenderness over the affected nerve trunks? He desired also further information as to the plantar cutaneous sensibility, because in this disease the cutaneous sensibility of affected areas was usually much diminished, and might be entirely abolished. Was there interference with nutrition of nails?

Dr Smart, replying, said he agreed with the President that if the degeneration of the nerve substance were complete, regeneration became impossible, but he looked on this point as he did on the regeneration of muscle. If a proper stimulus were applied to a muscle undergoing simple atrophic degeneration, it may be completely restored so long as a certain proportion of its normal structural elements remain entire. He considered the same held good with regard to nerves. With reference to Dr Ritchie's questions, he thought the patient came to him in the acute stage. There was great tenderness over the trunk of the anterior tibial, which was the nerve most affected. When he said there was sensibility over every part of the sole of the foot, he did not mean to imply that it was complete. There was a diminished sensibility, whether due to the rest in bed or to the affection of the nerves in the neighbourhood he was not sure. As to the nails, they were so overgrown that it would have been impossible to say whether their nutrition was interfered with.

2. *Dr F. Troup* read his paper on the DIAGNOSIS OF PHTHISIS, which appeared at page 1 of this Journal.

The President understood Dr Troup to mean that the presence of tubercle bacillus was an absolute and conclusive proof of the existence of phthisis, but drew attention to the fact that some observers held that tubercle bacilli might appear in sputum which was really non-phthisical. In such cases, when phthisis did not exist, it was probable that the bacilli had not found a soil suitable for their development and pathogenic activity. He considered the presence of elastic fibres a very important sign, as indicating the tissue of the organ being broken up. He regarded Dr Troup's micro-photographs of value in many respects, and not the least in exhibiting the varieties in size presented by the same kind of bacillus.

Dr Woodhead said there were some points in the paper which were to him in a new light, and one of these was that Dr Troup considered that danger of infection by the atmosphere was comparatively slight. In this, however, he corroborated what had been pointed out by other investigators, referring more particularly to the investigations of Drs Haldane and Carnelly on micro-organisms in sewers and their connexion with typhoid. These gentlemen have come to the conclusion that it is rare to have the disease propagated by micro-organisms carried through the air from drains, and that in those cases in which the drainage is said

to be bad, the milk or water is usually contaminated, and is the medium by which the disease is propagated. However, they cannot be taken as a hard and fast line for us, because they give certain cases in which the air might become strongly impregnated with micro-organisms from other sources; and if this is true of such an affection as typhoid, he thought it might be true of phthisis also. Dr Troup spoke of weakness of the lung tissue as not being indispensable to the propagation of the disease by the tubercle bacillus. He should be inclined to receive this with some reserve. There were cases in which children had died from catarrhal pneumonia after measles, diphtheria, and other conditions where, in the catarrhal pneumonic patches, one has been able to demonstrate in enormous numbers the bacilli. One may be told that these are only secondary, the dead tissue forming a nidus in which the organisms grow; but if these are present in such numbers, and have any causal relation to the disease, they must ultimately prove centres of infection. This was an extreme case, but it would hold good in a lesser degree of slighter lesions. Then again they must look to the lymphatic glands. A large number of organisms must make their way into the lymphatics and lymphatic glands just as dust does. So long as the organisms could be destroyed in the glands, so long was there no tuberculosis, but when once the glands were not able to cope with the bacilli, they began to caseate, and in the lymphatic area in connexion with it they found tubercular changes going on. He agreed with Dr Troup as to primary and secondary tuberculosis. Recently the records of a couple of interesting cases appeared in Virchow's *Archiv* of chronic phthisis with cavities at the apex, where the lungs had remained in this condition for a considerable time. Hæmorrhage occurred, and a sudden outbreak and inoculation of the whole system with this bacillus, and general tuberculosis as a result. In both cases the incubation period was that mentioned by Koch, about twenty days. The reporter held that in such cases the bacilli made their way into the white corpuscles and urethra, carried principally by the bloodvessels and partly by the lymphatics into the system, general tuberculosis being set up. A very interesting point brought out by Dr Troup was the difference in size of tubercle bacilli as observed even in sputa, and this was particularly well shown in the photographs handed round. The difference in size of the bacilli had been a matter of dispute, and had been greatly emphasized by some observers, and some had even said that this difference was sufficient to indicate that the tuberculosis met with in man and that found in animals were not the same, but Dr Troup's photographs set the matter at rest, inasmuch as the bacilli differed very materially in size, and that in the same sputum. In connexion with the inheritance from the mother to the child, he did not think that as yet there had been any case of proved inheritance, and he was very sceptical on the

point; they must take into account what Dr Troup had mentioned, the very great probability that the child might be infected through the mother's milk. Although Watson Cheyne pointed out recently that there have been a number of observations on the secretion of micro-organisms in milk, he did not think it probable that tubercle micro-organisms could make their way into the milk unless the gland itself was tubercular, a condition frequently met with in cattle. He could find no record of a tubercular mammary gland in the human subject. Still it was possible, though not probable, that the organisms might be secreted in the milk, and this should be borne in mind in considering this subject.

Dr James Ritchie asked, with regard to the rabbits which in Baumgarten's experiments were reported not to have taken tuberculosis, whether they had been killed and examined. Different animals showed different degrees of susceptibility to the poison. Calves fed with tuberculous milk were never affected; guinea-pigs quickly succumbed to the disease; rabbits apparently escaped, but upon examination after death their intestines were found to be studded with tubercle. If the presence of elastic tissue in the sputum preceded the bacillus, Dr Troup's observation was a most important one.

Dr Gillespie asked if Dr Troup considered the tubercle bacillus to be the cause of phthisis, and the sole cause of it? He had not gathered this from anything that had been said.

Mr Cathcart asked why, if the bacillus did not appear in the sputum till after breaking down of the lung tissue had taken place, the elastic fibres should be found before the organism. He thought that breaking down must have occurred before the fibres appeared, and could not see why the one should be found before the other. With reference to mammary tuberculosis, he was sure that cases had been recorded as having occurred in the human female. If the air of sewers did not sometimes cause affections such as typhoid, it was difficult to account for those cases of illness in a family which disappeared after defective drainage had been put right. There were numerous instances of this, and he believed that erysipelas was sometimes communicated through the atmosphere.

Dr Hare took exception to certain remarks in the paper which seemed to adversely criticise Dr Philip's recent researches on the ptomaines developed in the tubercular phthisical process. He thought the most natural and proper medium for the cultivation and separation of these ptomaines was the sputum itself, and he reminded the members of the Society that in Dr Philip's paper a number of control-experiments were described, in which the sputa of other diseases had been treated in an identical manner, without producing the pathogenetic derivative obtained from the true bacillary sputum. Even if it were proved that serum cultivations of

the bacillus contained no ptomaine, it did not follow that the bacillus produced no such body in the living tissues and in the sputum, for it was difficult, if not impossible, to prepare an artificial medium for cultivation that should entirely represent the conditions present in the living body.

Dr Troup explained that the cultivation he showed was made on glycerine agar-agar, which Koch informed him was much better than other mediums. When he spoke of the ptomaine he had no thought of any one in particular, because he had often heard the opinion expressed that it was by the development of a ptomaine that the tubercular changes were brought about. In answer to *Dr Gillespie*, he stated his belief that tubercle bacilli were the cause of tubercular phthisis. In other forms, such as dust phthisis, the bacilli would not be found. With reference to the influence of the atmosphere, he said the experiments went to show that the bacilli in it were not in an active state. He had seen in the Longmore Hospital a patient dying of phthisis lying for over a year beside another patient suffering from chronic bronchitis, and yet the latter did not develop phthisis. As to the elastic tissue, he had found it in the sputum of a man suffering from phthisis, as an extension of disease from tubercular iliac glands at least a month before he found the bacillus, though he made careful and repeated examinations.

SESSION LXVII.—MEETING IX.

Wednesday, 6th June 1888.—Dr JOHN SMITH, President, in the Chair.

I. EXHIBITION OF PATIENTS.

1. *Dr George Mackay* showed a case of PRIMARY SYPHILITIC SORE ON THE UPPER EYELID. The patient was a boy, aged 6, first seen at the Eye Dispensary, Cockburn Street, on 11th May 1888. He was then found to be suffering from a small inflammatory swelling about the size of a pea, situated on the right upper lid near the inner canthus. On the external surface of the lid the skin was unbroken except in the neighbourhood of the cilia, where there was a fine, thin, semi-transparent scab. On everting the lid slightly it was found that the mucous membrane on the inner aspect of the swelling was eroded and secreting a little muco-pus. There was no abrasion of the ocular conjunctiva, and only slight injection of the conjunctival vessels. The only history that could be obtained on that occasion pointed to its existence for about a week previously as a small sty. The majority of styes pointed at the lid margin, but *Dr Mackay* had occasionally seen them discharge their contents by sloughing through the mucous membrane posteriorly. In such cases they probably had their origin in the Meibomian glands as opposed to the sebaceous follicles. Though his suspicions were aroused in this boy's case, so as to

render him rather doubtful of its simple nature, he determined to try the effect of several small poultices and a mild antiseptic lotion. Three days later the little nodule had increased in size chiefly towards the mucous surface, and the ulcerative character appeared more decided. There was also some enlargement of the preauricular and submaxillary glands. Three sources of infection suggested themselves as possible causes of the condition:—(1.) Irritation by dirt or discharge from a non-specific source; (2.) Vaccination; (3.) Soft or hard chancre. Against the second there was the fact that no one had been vaccinated in his family lately. The swelling in the lid was moderately firm, but not of cartilaginous hardness, and, saving for the absence of infection of the opposing surfaces and the rarity of that condition in this situation, appeared more like a soft chancre than a primary syphilitic nodule. Both Dr Argyll Robertson and Mr Berry, to whom the case was shown on the following day, inclined to the opinion that it was a primary syphilitic sore, and specific treatment was immediately commenced. A papular rash, which appeared on his body a few days later (shown to the Society), confirmed that opinion, though it was rather an unusually early manifestation of the constitutional affection, having presented itself barely six weeks after the first appearance was noted in the lid. A careful inquiry into the history seemed to leave no doubt as to the specific nature of the infection, and revealed a very sad state of matters. The mother was a respectable widow, who took in students as lodgers. There was little doubt that one of these suffered from specific disease last winter. In some way or other which cannot be traced, the mother has been infected. She acknowledged to having used a toothpick of his on one occasion while suffering herself from an abrasion inside her cheek produced by a badly fitting plate of teeth. She now presented exceedingly well-marked secondary symptoms. She had extensive ulceration of the gums and mucous membrane of the lips, cheeks, tongue, and fauces, and a serpiginous eruption on the chin and side of the neck, which Dr Allan Jamieson had pronounced to be of syphilitic origin. While suffering from these symptoms she had frequently kissed the boy, and thus communicated the infection to him. The little boy had as yet no further symptoms, and the primary sore and enlarged glands were now diminishing.

2. *Professor Grainger Stewart* introduced—(a.) A PATIENT, B. R., 58, a married woman; has had a hard life, with many privations, but has always been temperate. She has had several illnesses, but the only one of importance was a “rheumatic fever” sixteen years ago, which lasted for six months, was unattended by sweating, and in the course of which there appeared ptosis of the right eyelid, paralysis of the right internal rectus, and motor paralysis of the left leg. After recovering from this attack she suffered

from headaches, vomiting, and polyuria, and soon afterwards the attacks from which she now suffers were first observed, and they have continued ever since. Her general health is good; she passes about 100 oz. of urine daily, which, however, is normal in every respect. In regard to the nervous functions, she has frequent headaches, giddiness, and subjective sensations of heat and cold, and some paralysis, both sensory and motor, of the right leg. In both eyes there is staphyloma posticum, and some optic atrophy; the right eye is blind, and its movements are very imperfect; the left eye is very hypermetropic. Hearing and taste are normal; there has been complete anosmia for fifteen years. The reflexes are fairly normal. Her intelligence and memory are unimpaired. The interesting point in the case, however, is this, that whenever her sound eye is closed, and under certain other conditions, she takes a fit, in which she falls forward, giving an inspiratory snort at the moment of falling, and then remains unconscious for about half-a-minute, and gradually recovers. There are no general convulsions, but the left eye is turned upwards, and remains so till the end of the fit. During unconsciousness faradic currents and other strong stimuli fail to rouse her. Various experiments have been tried, such as sudden darkening of the room while she was conversing and bringing a hood over her face, which would point to arrest of retinal stimulation as being the cause of the seizures; but, on the other hand, other experiments show that the attack comes on when the eyes are open, and light is reaching the retina if anything is placed in such a position as to cut off the view of surrounding objects. Most careful observation has satisfied other observers as well as Prof. Stewart that the symptom cannot be explained on the theory of malingering; the process is exactly the same as it was sixteen years ago. She has never had any hysterical or general convulsive attack. Beyond the existence of two cicatrices in the pharynx, and the history of the so-called rheumatic fever, Prof. Stewart had not been able to obtain evidence of syphilitic infection. (b.) A lad from Northumberland with acute BULBAR symptoms. He was engaged in the end of March in clearing the rails after the snow-storm. He was seized sometime after with acute bulbar symptoms, due evidently to inflammatory changes in the medulla. These were gradually disappearing. The saliva still overflowed. The movements of the tongue were impaired, and the uvula and soft palate paralyzed.

3. *Dr Brakenridge* showed a case of a lesion of the LEFT HALF OF THE CERVICAL REGION OF THE SPINAL CORD. The patient was a waiter, who had taken alcoholic stimulants for ten years past. After a week of pretty heavy drinking he woke up one morning quite paralyzed. His condition was at first taken to be one of hemiplegia from cerebral paralysis. On a careful examination he

was found to have the following symptoms distinctive of unilateral spinal lesion. On the one side there was motor paralysis, which has passed off to some extent, also on the same side marked impairment of the muscular sense; also some vaso-motor disturbance, there being pallor and a slight degree of coldness; marked increase of the deep reflexes; sensibility unimpaired and the cutaneous reflexes diminished. On the opposite side there was impairment of cutaneous sensibility in all its forms, complete analgesia. The point of chief interest was the difference of the reflexes on the two sides. On the side where sensibility was impaired there were exaggerated tendon reflexes; on the side where sensibility was impaired were diminished cutaneous reflexes.

4. *Dr Allan Jamieson* showed a boy who had suffered from FAVUS, to illustrate the effect of a method of treatment which had lately come into vogue. Since the discovery of resorcin, the treatment of this affection had been much facilitated. The patient's head was shaved and poulticed, washed with black soap and warm water, and then a paste applied consisting of one drachm of resorcin to two drachms each of lanolin, vaselin, zinc oxide, and starch. Sometime after, in order to see if the result could be hastened, epilation was performed, and the same ointment applied. A curious result followed. The epidermis became loose, and could be stripped off in flakes. It had been examined and no parasite found. The hair had begun to grow in all over the scalp. The spores in this treatment disappeared before the mycelium.

II. EXHIBITION OF SPECIMENS.

1. *Dr P. H. Maclaren* exhibited—(a.) A specimen showing the spread of a MELANOTIC SARCOMA by the lymphatics. The patient was a Perthshire shepherd, aged 58, of good physique, powerful and active, and with exceptionally good personal and family histories. Till December 1886 he had not suffered from any illness. The first symptom of his trouble was then felt. When walking barefooted in the lobby of his house he imagined he had trodden upon a nail, as he perceived an unpleasant pricking sensation in his heel. Examining it he found a little elevation about the size of a grain of corn, and blackish in colour. He considered it was merely a hard corn, and did not trouble himself about it. The nodule went on growing without causing him much annoyance till the end of August 1887, when it had become so large that he felt it necessary to consult a doctor. It was then treated by the application of caustics, poultices, and ointments, but all the while steadily increased in size. A second growth also formed, which after some time coalesced with the first. In March of the present year he noticed a swelling in the groin of the affected side. He was then advised to enter the Infirmary, which he did on the 9th April. Two days before he had worked twelve hours dipping sheep,

though in considerable pain. The tumour was then found to consist of a black elevated mass, occupying the under surface of the heel, and extending forwards and inwards to the inner side of the sole of the foot. Its margins were ill-defined, the odour offensive, and it was pulpy to the feel. Several black spots were visible around it in the subcutaneous tissues. These were found to contain granules of pigment. The femoral lymphatic glands formed a large mass occupying Scarpa's triangle, but not adherent to skin or vessels. The urine was normal in amount, dark in colour, and answered to the tests for indican. The limb was amputated on 19th April in the upper third by Teale's method, and the glandular mass in the groin freely and entirely removed. The glands were deeply pigmented and enormously enlarged. The amputation and groin wounds have both healed satisfactorily. The urine for some time after the operation gave the reactions of indican very faintly or not at all, but the reaction has again become marked. The lymphatic vessels had been dissected, and showed pigment masses continuously throughout their course. It was not often that malignancy was so clearly manifested in three distinct forms in a single case,—involvement of neighbouring textures, lymphatic absorption, and implication of the blood, as shown by the presence of melanin in the urine. (b.) A URETHRAL CALCULUS from the same patient. It was only discovered when the catheter had to be passed after the operation. It had been formed *in situ*, and weighed 58 grains.

2. Dr J. M. Cotterill showed FIFTEEN INCHES OF LARGE INTESTINE RESECTED WITH SUCCESS IN A CASE OF UMBILICAL HERNIA. The patient was an enormously stout woman, weighing 18 or 19 stones, and was seven months pregnant. An umbilical hernia of some standing came down and could not be returned. Her medical attendant put on a firm binder, and sent her into the Maternity Hospital, under the impression that the child was dead, and that she was about to miscarry. On arrival there her condition was at once recognised, and she was transferred to the Infirmary. When admitted she was collapsed and *in extremis*. There was a large bright red tumour on the top of an enormous abdomen. Dr Cotterill resolved to give her the chance of an operation. An incision 9 inches in length was made and the sac opened into. A gangrenous and burst intestine and gangrenous omentum were then found. The omentum, sac, and sloughs of cellular tissue were removed, and fifteen inches of gangrenous large intestine cut away. The two ends were left at the umbilicus, no attempt being made to unite them. The woman was got back to bed alive, and fed per rectum. Thirty-six hours after the operation she gave birth with one pain to a child, which lived for several hours. Afterwards the woman made an uninterrupted recovery. She still defæcated at the umbilicus, but Dr Cotterill hoped to remedy that by a second operation. The part of intestine removed was from the transverse colon.

3. *Dr Shaw McLaren* exhibited—(a.) A specimen showing the EFFECT OF TWISTING THE SAC in the operation for the radical cure of hernia. The patient on whom he operated was not a favourable subject, being over 70, and having had a pneumonia four weeks before and a hemiplegia at the time of operation. A strangulated hernia required operation, and after it was performed the sac was twisted after the manner recommended by Mr Ball. In the specimen there was a dimple of the peritoneum at the internal ring instead of the projection which Mr Ball obtained by experiments on the cadaver. The canal was otherwise perfectly plugged by the twisted sac. (b.) A SCIRRHUS OF THE MALE BREAST removed by Dr Watson along with the axillary glands.

4. *Professor Grainger Stewart* showed a specimen of SULPHONAL, a new hypnotic, which had been made known to the profession mainly by Professor Kast of Freiburg, and which had been used with much success in practice by Prof. Stewart. Doses of 15 grains often produced satisfactory sleep, and doses of 30 or 45 rarely failed to do so. No injurious effects had been observed to follow upon its use, and its taste and smell were not unpleasant.

III. ORIGINAL COMMUNICATION.

TWO EPIDEMICS OF SORE THROAT AND THEIR RELATION TO THE MILK SUPPLY.

Dr J. M. Cotterill read a paper, of which the following is an abstract, giving the history of two epidemics of sore throat occurring at Fettes College. The first of these epidemics began in October 1886, and comprised 50 cases; the second appeared exactly a year later, and comprised 84 cases. Both began about three weeks after the assembling of the boys after the summer vacation, and both commenced alike by several boys being taken ill on the same day, these boys coming from different school-houses, and most of them not having been in any close contact with each other.

The symptoms of the disease were as follows: When first seen the patient was generally out of sorts, complaining of headache, want of appetite, and lassitude; occasionally there was sickness or nose-bleeding; in most cases a furred tongue, foul breath, and other symptoms of gastric disturbance. The tonsils and posterior wall of the pharynx were bright red, with considerable swelling of the mucous membrane. The uvula and soft palate were also congested, but in no case (out of 130) was there any membranous deposit on these parts. Upon the tonsils and wall of the pharynx, however, there were always follicular exudations, and sometimes a considerable patch of deposit on the tonsils, which were often much swollen and deeply fissured. These patches could always be easily removed. Albuminuria was very infrequent. The disease usually lasted about seven days in its acute stage. A peculiar

symptom was the implication of the uppermost of the chain of lymphatic glands behind the sterno-mastoid. This always happened several days after convalescence had commenced. There would be a large brawny swelling in the neck, which in every case subsided slowly without suppuration. Rheumatic pains in the neck and back were frequently noticed during convalescence, and in three cases rheumatic fever followed the sore throat.

In the case of the first epidemic, Dr Cotterill had the drains of the College dairy examined, and as slight defects were found, the disease was thought to be due to this cause. While these defects were being remedied, the milk given to the boys was boiled, and four days after this practice began the epidemic stopped suddenly, and did not appear again for some three weeks. Then, upon the milk being given unboiled, the cases began again. The epidemic, however, gradually died away, 50 cases in all having occurred, of which all but five or six appeared before the milk was boiled, or within four days after that practice began. There was not a single case of similar sore throat in the school till the very same day in October 1887 upon which the epidemic had begun in 1886.

At the commencement of the second epidemic Dr Cotterill naturally suspected the dairy drains again to be at fault; but being assured by the sanitary officers that they were in perfect order, he was doubtful as to whether the milk was really the medium of infection. To test this he again ordered the milk to be boiled. By this time the epidemic had lasted eleven days, and some 50 cases had already appeared. Four days after the boiling of the milk began the epidemic suddenly stopped. Meanwhile the cows had been inspected by Professor Williams, and two of them had been certified to be suffering from "variola vaccinia" in its later stages. These cows were separated, and no further sore throats occurred for thirteen days. The attendants at the dairy had also been carefully examined by their ordinary medical attendant, but no present nor recent illness could be discovered amongst them to account for the epidemic.

To test the value of the separation of the diseased cows, the boiling of the milk was then discontinued (*i.e.*, after no sore throats had appeared for thirteen days). Three days later the epidemic began again. Dr Cotterill then asked Dr Woodhead to visit the dairy with him, and they found two new cases of vesicular disease in the cows which had not been separated. On this occasion the owner of the cows, to prove that there was no connexion between the cow disease and the sore throats, pointed to, as she believed, a healthy cow, the milk of which had been reserved for a baby of one of the customers, this baby, notwithstanding, having contracted the sore throat. To the dismay of the owner, however, it was discovered that this cow had a well-marked vesicular eruption on the inner aspect of one of her teats. After separating these two cows the epidemic again stopped for five days, but then new cases began to appear again. This was possibly due to the

fact that, to make up for the diminution of the supply from the separation of the diseased cows, milk, admittedly of an inferior quality, had been got from an outside dairy and mixed with that going to the College. An arrangement was accordingly made for supplying two of the schoolhouses from another dairy altogether, while the rest of the College was supplied with milk from the healthy cows of the College dairy. After that, though the milk was no longer boiled, the epidemic ceased altogether.

Dr Cotterill had heard of at least nine houses in the west end of the town where these sore throats had attacked several members of the family, and in every single instance the milk was supplied from this College dairy. He was not able to convince himself that this sore throat was contagious, for when the milk was boiled affected boys were going about freely among their fellows, but did not seem to disseminate the disease, nor did the disease affect groups of boys who were specially thrown in contact with one another. Out of the fifty boys attacked in 1886, only one suffered in 1887. The total percentage of boys attacked in the second epidemic was about 35 per cent.

The chief points which appeared from a consideration of the foregoing facts were as follows:—1. That this form of sore throat, while presenting certain points of resemblance to follicular pharyngitis and to diphtheria, was absolutely distinct from both, and was a form of disease not usually recognised nor described. 2. That it was due to the milk supply. 3. That it was possibly due to some form of vesicular disease in the teat of the cow. 4. That an almost absolute immunity from a second attack was obtained by a first attack. While these propositions were not brought forward as absolutely proved facts, Dr Cotterill thought the evidence strong in their behalf. The milk supply had lately played the part of scapegoat, and while it was most inexpedient to cause unnecessary alarm, it was imperative that such facts should be looked in the face.

A paper by Dr G. S. Woodhead relating to an inquiry into the bacteriological examination of the boys' throats, matter from the diseased cows' vesicles, etc., was read; but as the inquiry is still incomplete, fuller particulars will be given at a later date. At present it is sufficient to say that several micro-organisms common to the sore throats in the boys and the milk and vesicles in the cows were discovered.

Dr M'Fadyean said that he had listened with great pleasure to the paper which had just been read by Dr Cotterill, but he must say that this pleasure was alloyed with a slight degree of apprehension lest Dr Cotterill might be able to prove that the epidemic of sore throat was due to the milk. Certain facts, however, within his own knowledge tended to make that apprehension very slight. He (Dr M'Fadyean) had had under observation the dairy to which reference had been made almost from the very outset of the sore

throat epidemic. He thought he would be able to state some facts which, if they did not prove that the outbreak was not due to the milk supply, would at least go to show that it was not in any way connected with the cow disease. His own connexion with the dairy was as follows:—He ascertained from Professor Walley, of the Royal Veterinary College, about the middle of October last, that there was an outbreak of eruptive disease on the udders and teats of the cows at this Comely Bank dairy. At that time he was conducting a series of experiments for the Agricultural Department of the Privy Council, and in one of his reports to Professor Brown he mentioned this epidemic. He received a reply requesting him to keep the disease under observation, and to spare no expense that might be considered necessary to elucidate the nature of the disease. The consequence was that he had the dairy in question under close observation from the 22nd of October until the middle of January. Now, unless there was proved a clear correspondence between the course of the outbreak in the cows of this dairy and that of the sore throat epidemic, Dr Cotterill's contention that the cow disease was the cause of the sore throats would entirely fall to the ground. He thought he could show that there was no connexion in point of time to be traced between the incidence of the cases in the cows and the course of the epidemic in Fettes College; he thought, in fact, he could show that the disease existed in the dairy long after the sore throat epidemic had ceased. The facts that to his mind would demand from Dr Cotterill an explanation were as follows:—There were no cases (if he had noted correctly what Dr Cotterill said) from 22nd October till the 7th of November. Dr Cotterill ascribed this change to the separation of the affected cows.

Dr Cotterill.—No, to the boiling of the milk as well as to the separation of the cows.

Dr M'Fadyean.—What was the last date upon which the milk was boiled?

Dr Cotterill.—The 5th of November.

Dr M'Fadyean (continuing) said that from the date of his first visit on the 22nd of October until the middle of January he saw continuously in the dairy cows affected with this eruption. From the 10th to the 22nd October, there were four cows attacked with this vesicular eruption, and six from the 24th October to the 12th November. There were new cases on each of the following days:—on the 18th, 19th, and 30th November; 9th, 11th, 21st, and 24th December; on the 5th January, and about the middle of January. There could be no question whatever that these cases were all of the same character. That led him to refer to the inquiry as to what was the character of the eruption on the udder. Dr Cotterill incidentally mentioned in his paper that Professor Williams had in his report stated that it was cow-pox. He was very much surprised that any one with the experience of Professor Williams should have been led to give that opinion, because to his

mind there was not one of the features characteristic of cow-pox present in this eruption.

Dr Haddon.—Did Dr M'Fadyean see the cows referred to by Professor Williams?

Dr M'Fadyean replied that he had—that he had seen every case that occurred in the byre from the beginning of the outbreak till the middle of January. He had been able to watch the complete course of the disease, which he had described in a report recently furnished by him to Professor Brown. Besides he had had drawings made showing the eruption in its various stages. The eruption in these cows had the character of unilocular vesicles rapidly becoming purulent, there was no areola, and there was no subsequent pitting. The latter feature was perhaps not distinctive, but to settle the matter he had made the following experiment. A calf was inoculated with matter from a recent vesicle on one of these cows. As a result a slowly healing sore formed at the point of inoculation. After a month this calf was again inoculated, this time with vaccine (calf) lymph, and the inoculation took in a typical manner. He had been careful to perform this experiment in anticipation of any one concluding that the disease had been true cow-pox. He was distinctly of opinion that it had not been proved that the epidemic was caused by the milk supply through the cows having been affected with this vesicular disease of the teats. The milk in this case was sent immediately after milking to Fettes College, and he asked was it not just as possible that it became contaminated after it reached the College? He did not think it necessary to refer at length to Dr Woodhead's part of the inquiry, for as Dr Woodhead himself pointed out, the results where reliable were negative. He entirely concurred in Dr Cotterill's opinion that, while we should not jump to hasty conclusions, the facts where they pointed to milk contamination must be faced. He had taken up the inquiry with his mind quite open to find that there was a causal connexion between the cow disease and the sore throat epidemic, but the facts forced him to an opposite conclusion. He did not feel justified in denying that the milk supply was the cause of the epidemic, but he certainly thought that Dr Cotterill was not justified in concluding that "the epidemic was due to the ingestion of milk from cows that were suffering from one of the many forms of vesicular disease of the teats," if by that he meant that the vesicular disease was the cause. In conclusion, he asked Dr Cotterill to explain how it was that out of the 65 per cent. of pupils that remained open to infection after the 20th November not one had been attacked, although to his positive knowledge milk taken from affected cows had been regularly sent to the College up till the middle of January. He did not think Dr Cotterill could explain that—he hoped he could not—and he was therefore happy to think that Dr Cotterill had not added a new terror to the consumption of milk, that in fact he had not established the existence of another

disease which could in this way be transmitted from the lower animals to man.

Dr Foulis considered that the epidemic described was caused by the milk supply. It did not matter whether it was from the vesicular disease of the teats or not. The evidence that the milk supply was at fault was to his mind convincing. It was therefore of importance that such dangers in the milk supply should be checked at once, and the only way of doing this was by boiling the milk. *Dr Foulis* further referred to the scarlet fever epidemic of last year, and read a letter he had from *Dr Russell* of Glasgow regarding an epidemic in that city. In both cases the epidemic was undoubtedly caused by contaminated milk. Nothing but the most stringent supervision of all dairies and farms which supplied milk, and the thorough boiling of milk, just as we cook all other animal foods, would prevent these dreadful epidemics.

The President reminded the members that the question at issue was whether the vesicular disease on the teats of the cows was the cause of the sore throat epidemic or not.

Dr Peel Ritchie said there were two points on which he should have liked more information. The first was, whether the patients had any spots under the tongue or elsewhere in the buccal cavity except on the fauces; and the second was, whether the people engaged in the work of the dairy had been examined to see if any eruption appeared on any part of their person, such as the hands. He did not think *Dr Cotterill* had brought before them a new disease. His recollection went back to 1863, when *Dr George Balfour* brought before them two cases recorded by *Dr Hislop* of Renfrew, in which two persons were affected with vesicular eruption, and others with sore throat, after drinking the milk of animals suffering from epizootic aphtha or murrain. When he wrote his paper on *Stomatitis* he drew attention to similar instances recorded in the *Veterinarian*. It seemed to him that the vesicles described were nothing more nor less than a form of murrain. As for the epidemic, he could not but believe that it resulted from the milk supply.

Dr Brakenridge said he was one of the physicians who was in attendance on four families beyond the Dean Bridge, the members of which suffered from symptoms corresponding exactly with those described by *Dr Cotterill*. In one of the families the swelling of the glands was a very marked feature. He was puzzled to know the cause of the outbreak, and had the house drains overhauled without finding anything conclusive. It was not till the lady of the house informed him of a remark innocently made by the dairyman to the servant, who told him of the illnesses in the house, when he said that all the houses he was going to seemed to have the same trouble. He did not know of any case occurring in which the milk was not supplied by this dairy. The point whether the vesicular disease of the cows' teats was the cause of the epidemic was not so well made out. The

thing that struck him was the isolation of the disease, and the confinement of it to one dairy, and it raised the question whether there might not be some other condition present in the dairy which had not yet been found out.

Dr Hare said the dilemma in which they were placed with regard to this question was a very complete one. He ventured, however, to suggest that there was a possible way out of it. It seemed to him that there must be something more than the mere occurrence of a special disease in animals before it passed to man. In connexion with this they must look for further aid to the veterinary and bacteriological sides. The clinical work had been completely carried out. It might be that disease in animals could be conveyed to man only at certain stages, or at certain periods of the year.

Dr M'Kenzie Johnston thought the epidemic was not so local as Drs Cotterill and Brakenridge took for granted. He had seen several cases, apparently exactly similar, where there was no cause to suspect the milk, and which was from a different source. Dr Cotterill, he thought, had proved in his own cases that the milk was the carrier of infection, but Mr M'Fadyean had gone far to disprove the connexion of the epidemic with this vesicular cow disease. He was inclined to think that germs from decomposing organic matter—however introduced into the body—were a likely cause of sore throat. Might not the cessation of the epidemic be due to increased cleanliness and precautions taken by the proprietor on finding his byre constantly under supervision?

Dr Russell of Davidson's Mains asked if Dr Cotterill had taken into account a burn running past Fettes, which was in a very filthy condition, and had to be cleaned out shortly before the epidemic occurred.

Dr Burn Murdoch had seen one or two epidemics of sore throat, which had completely puzzled him. In one instance sixteen cases, with characters not unlike those described by Dr Cotterill, occurred within a week. He took the trouble to investigate the milk supply, and found that all of them got their milk from one dairy, near to the Barclay Church, which got its milk from Davidson's Mains.

Dr Allan Jamieson said that during the time when this epidemic was going on he had carefully watched all the cases in the City Hospital to see whether any symptoms occurred like those which characterized this epidemic, but he saw none. The glandular swellings described did not appear in any of their cases. This favoured the views of Drs Cotterill and Brakenridge that the disease was one *sui generis*.

Dr Cotterill, replying, said he must congratulate himself that the clinical opinion was on his side that this was a new disease, or at anyrate one not generally recognised. While he sympathized with Dr M'Fadyean in not wishing to make a further scapegoat of

milk, he could not help believing that the milk supply was at the bottom of the epidemic. Whether it was the particular vesicular disease of the teats which was the cause was a point on which he was rather half-hearted. That it was the milk he was certain, but what condition in the milk he could not say. An interesting question which he should like to put to Dr M'Fadyean was whether the vesicles were distinguishable. He had seen it stated that there were seven or eight forms of vesicles which affected the teats of cows, and that it was frequently impossible to distinguish these.

Dr M'Fadyean said he could now distinguish this particular vesicle.

Dr Peel Ritchie asked if the condition was one of murrain.

Dr M'Fadyean.—No.

Dr Cotterill, resuming, said the fact that the epidemic in the dairy went on after that in the school ceased did not prove that the epidemic in the school was not due to that in the dairy; for not only were fifty boys protected from the second epidemic by having suffered the year before, but also they were quite ignorant of the special conditions which caused such a disease in the cow to be harmful at one time and not at another. The boys had no spots or aphthous patches anywhere. The dairy people had all been carefully examined, and none of them had sore throats or sores anywhere either at the time of the epidemic or shortly before it. Dr Mackenzie Johnston thought he had seen similar cases. Probably that was so, and probably there might be cows in other dairies affected in a similar way. As to the burn, it did not run through any part of Fettes where the boys could come in contact with it. It had been suggested that the cows might have fed on contaminated grass along its banks, but they were unable to get any proof of that. Dr Burn Murdoch's observation was very important. It was possible that the burn might have been the cause of the epidemic he (Dr Burn Murdoch) observed, seeing that it passed through Davidson's Mains, from which the suspected milk came. He was disappointed that no reference was made in the course of the debate to the improper use of the term "diphtheritic" in connexion with such cases.

OBSTETRICAL SOCIETY OF EDINBURGH.

SESSION XLIX.—MEETING X.

Wednesday, 11th July 1888.—Dr UNDERHILL, *President, in the Chair.*

I. *Dr Brewis* showed (a) a SOLID OVARIAN TUMOUR of large size which was infiltrated with lime salts; (b) DISEASED UTERINE APPENDAGES.

II. *Dr Foulis* asked the President's permission to mention to the Society that he had recently met with a patient who belonged to a remarkably PROLIFIC FAMILY. Her grandaunt had triplets, her

mother and one of her sisters had twins, and her eldest sister had twins three times.

III. DEMONSTRATION OF THE ACTION OF GALVANIC CURRENTS ON TISSUE, by *Dr Milne Murray*.

Dr Foulis brought before the Society the fact that the negative pole may be dangerous on account of its wide electrolytic action, which may cause sloughing. He would like to hear from *Dr Murray* whether, in his experience, he had found that metritic effusions are acted on by the current. *Keith* asserted that in large thickened uteri absorption took place under the influence of galvanism.

Dr David Smart mentioned the case of a tumour which was perforated through the posterior fornix by the negative pole with a fatal result, and at the post-mortem examination a large slough was found.

Dr Milne Murray did not believe that there existed any physical possibility of "charging" a patient with electricity, as had been supposed by several experimenters. The phenomena described by them as proving this were simply the result of well-recognised phases of polarization. He illustrated this by means of a diagram. The so-called interpolar action was no more possible in a tumour than in a salt solution. The negative pole, when introduced into the substance of the tumour, was undoubtedly more efficient, but he agreed with *Dr Foulis* that its action in this way was by no means free from danger; and every precaution should be taken to avoid the risks, septic and other, attending this procedure. The mucous membrane offers little or no resistance to the passage of the current, and consequently the poles will necessarily produce their respective effects on the tumour if in contact with it, though to a less extent than when actually embedded in its substance. With regard to the treatment of inflammatory effusions, *Dr Murray* mentioned the case of a patient whose pelvis was roofed in with perimetritic deposit, who was treated with the positive pole inside and the negative outside, and that after twenty-six applications the swelling entirely disappeared.

IV. A CASE OF ACUTE PHTHISIS, WITH LARGE CAVITIES, IN AN INFANT NURSED BY A PHTHISICAL MOTHER, by *Dr John Thomson*. The paper will appear in a future number of this Journal.

The President said the thanks of the Society were due to *Dr Thomson* for his interesting paper. The theory that phthisis can be communicated directly has been recently proved, and we have more reason to consider *Dr Thomson's* case one of direct infection than of inheritance of tubercle. In inherited cases we are sure to find tubercle in other organs. The high percentage of tubercle present in children who die before nine months was pointed out in a Russian medical paper which he (the President) had lately read.

V. THE PATHOLOGY OF CYSTIC OVARIES, by *Dr J. W. Martin*. The paper will appear in a future number of this Journal.

Dr Foulis said that thanks were due to *Dr Martin* for his great

labour, and it was important to bear in mind that the work was done in the laboratory of the College of Physicians. The subject is an immense and a very difficult one, and he must confess that Dr Martin's results are not an advance on those of other observers such as Waldeyer and many others. Until the development and physiology of the ovary are understood its pathology cannot be mastered. Dr Foulis maintains that the cells surrounding the follicles are derived from the stroma. Some of these cells may get shut up in the stroma and give origin to cysts. Numerous cysts are formed near the hilum from Wolffian remains. Cystic ovaries are doubtless degenerated follicles.

The President said the subject was of enormous extent. The development of ovarian cysts appeared to him to be analogous to the development of mucous cysts in the cervix, which were due to exaggerated physiological action of the part.

Dr Martin briefly replied.

Part Fourth.

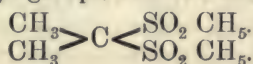
PERISCOPE.

MONTHLY REPORT ON THE PROGRESS OF THERAPEUTICS.

By WILLIAM CRAIG, M.D., F.R.S.E., Lecturer on Materia Medica, Edinburgh School of Medicine, etc., etc.

ANTIFEBRIN AS AN ANTI-EPILEPTIC.—In the insane asylum in Hermannstadt, Dr B. Barosuyon has lately tried antifebrin in nine cases of epilepsy—six males and three females. First, they were given 90 to 120 grains of bromide, and then 4 to 30 grains of antifebrin. There were also days allowed to pass without any treatment whatever. Comparison showed that in all cases bromide was more active in reducing the frequency of the attacks than antifebrin. In general, it may therefore be stated, that antifebrin has no effect upon epilepsy. It would also not be advisable to continue its use for any great length of time, as cyanosis was observed in every case (*Centralblatt f. d. Gesamnte Therapie*, March 1888).—*Therapeutic Gazette*, June 1888.

SULPHONAL—A NEW HYPNOTIC.—The latest addition to our Materia Medica suggested from the chemical laboratory has received the name of sulphonal by Baumann, its discoverer, and has been claimed by Professor Kast, of Freiburg, to be possessed of marked hypnotic properties. Sulphonal is one of a class of compounds that have been worked out by Baumann (*Berichte*, xviii. 47, 883, xix. 2803, *et seq.*) The composition of sulphonal may be represented as methane, in which the four hydrogen atoms have been replaced by two methyl groups, and two ethyl-sulphon groups.



Sulphonal crystallizes in large colourless tables, and is perfectly devoid of odour and taste. It melts at 130° to 131° C., and boils at about 300° , almost without decomposition. It dissolves in eighteen to twenty parts of boiling water, but requires one hundred parts of water at the ordinary temperature. It is readily soluble in alcohol or alcoholic ether. It is not affected by acids or alkalies, or by oxidizing agents, either hot or cold. Thus, concentrated sulphuric acid scarcely attacks it, and it resists fuming nitric acid, chlorine, and bromine. It is therefore an extremely stable body. From the experiments of Kast (*Berliner Klin. Wochen.*, 16th April 1888), it would appear that doses of from 45 to 60 grains may be taken by healthy adults without the least discomfort or disagreeable after-effect other than considerable sleepiness. Given to dogs, in doses of 30 grains, it produced want of co-ordination in the movements of the extremities, and finally provoked sleep. After awaking from the sleep, there was still some want of co-ordination in the movements of the limbs, but this soon passed off, and the animals then were in their previous normal condition. Examination of the effects of sulphonal on the blood-pressure by Professor von Kries, established the fact that in dogs, even after very large doses, the blood-pressure was not lowered, while poisonous doses caused severe convulsions, passing into heavy sleep, deepening into coma, and ending in death in about ten hours. The drug has been given medicinally to sixty patients, and three hundred observations of its effects were made, the results being that, almost without exception, the patients passed into a tranquil sleep, lasting from five to eight hours, and awoke feeling perfectly comfortable. No disturbance of digestion, pulse, or temperature was noticed, and no want of co-ordination in the limbs, which was so evident in the case of dogs, appeared after the administration of this substance to men. The ordinary dose given was about $\frac{1}{2}$ drachm, although in women 15 grains, or in man 45, may produce the characteristic effect. It has been found to be most conveniently administered in the form of powder enclosed in wafer. The testimony as to the value of this new hypnotic is as yet scarcely complete enough to establish its position. The indications are that we will have in this substance a remedy which will be quite as valuable as amylene hydrate, since it has been given even in cases of cardiac valvular disease without disagreeable effect, and is especially efficacious in cases of sleeplessness in nervous subjects.—*Therapeutic Gazette*, June 1888.

THE TREATMENT OF CHOREA WITH PHYSOSTIGMINE.—Dr L. Rieis writes to the *Berliner Klinische Wochenschrift*, No. 22, of forty cases of chorea which he treated with physostigmine. Thirty-four of these cases were children and young people, and were mostly new cases where the disease had not been continuing for any great length of time. The remaining six occurred among older patients; two of them were acute, and four chronic or habitual (perhaps secondary). Among the first named, four were of the severer fatal

description. In such cases physostigmine proved to be as powerless as all other drugs; true, its use in these cases was only a limited one, as the course of the disease was so rapid. The four chronic cases were only improved by the use of physostigmine, but this improvement took place soon after the treatment had been begun, and was a lasting one. All the other cases were completely cured by physostigmine. Two cases, which were specially noted, had been very severe and tedious, and were completely cured in a remarkably short time. Indeed, in most cases the disease disappeared in four or five days.—*Therapeutic Gazette*, June 1888.

THE OINTMENT OF THE NITRATE OF MERCURY AS AN ABORTIFACIENT OF BOILS AND FELONS.—For the last six years Dr Robert C. Kenner (*Med. and Surg. Reporter*, April 14, 1888) states that he has used the ointment of nitrate of mercury as an abortifacient of boils and felons with a degree of success that has followed upon the use of no other agent for the same purpose. He claims that he has been able to abort nearly all the cases which came under his care before suppuration had commenced. The application of the ointment is not painful, and in about twelve hours the pain disappears, and there is a peculiar drawing sensation which continues several hours, though it is not unpleasant, and then follows a complete cessation of all pain and uncomfortable sensations. His method of applying it to felons is to cover the entire finger with the ointment to the thickness of an eighth of an inch. He then puts a piece of thick sticking-plaster around the finger, the edge of one side over-lapping the other, and the ends folded and sealed by thinner plaster. The dressing may remain for twenty-four hours, at which time no further treatment will be usually necessary. He reports several cases in which cure was produced by these means.—*Therapeutic Gazette*, June 1888.

MEDICAL PERISCOPE.

By FRANCIS TROUP, M.D.

Berlin. Klin. Wochenschrift, No. 25, 1888.—Dr Rosin of Breslau has extensively tried "sulfonal" as a hypnotic, and finds that, on the average, it is a narcotic in doses of 2 grammes, second in safety to none of the other approved narcotics, such as morphia and chloral, and on account of the absence of injurious concomitants or secondary effects, it may be given safely in doses as strong as 4 grammes in uncomplicated sleeplessness.

Ibidem.—Dr Oestreicher of Berlin speaks also highly in its favour. He says sulfonal is a harmless hypnotic, causing no bad after-effects. Respiration, pulse, and kidney secretion, as far as albuminuria is concerned, remain uninfluenced. But whether its long-continued use may cause disturbances he cannot at present tell. On account of its tastelessness and inodorousness, it de-

serves to be preferred to amylenhydrate and paraldehyde. It is not absolutely certain in its operation, but equals chloral in corresponding doses, over which it has this advantage, at least in its transitory use, that it is not dangerous even in serious heart affections; it also causes no intoxicant or excited conditions. In the first days of abstinence from morphia it is not of much service any more than chloral, paraldehyde, or amylenhydrate. The sleep it brings comes on later than with those other hypnotics, only after one to three hours, but is sounder and of more duration. It is well to prescribe it some hours before the usual time of going to bed. Speedy accustomment to its use does not seem to happen; but he is, as yet, unable to say whether it may not sometimes occur.

Ibidem, Nos. 25 and 26.—Dr te Gempt of Uelsen has two lengthy papers on the use of double salts of caffein (the natrosalicylate) in diseases of the lungs.

1. The employment of caffein double salts in the course of an acute pneumonia is indicated as soon as observation of the heart's action and pulse tell us that declension of the heart's power, sinking of the blood-pressure in the aortic system, or an abnormal frequency of the pulse or its want of rhythm, are already threatening life.

2. Their employment should be begun before actual collapse has come on, and their indication is all the more urgent and often satisfactory even after it has set in.

3. Where conditions of weakness, valvular lesions, and atrophy of the heart are already present, their use is indicated even at the beginning of the inflammatory complication.

4. Their proper employment in suitable doses causes a diminution of pulse and respiratory frequency, increase of arterial pressure, lowering of temperature, and favourably influences the subjective conditions. Stimulants are not excluded while using caffein, but, on the contrary, must also be pressed into the service when suitable indications arise.

5. Their operation is soon evident, but becomes more speedy if subcutaneously injected in particularly threatening cases. After defervescence has begun, their use should be suspended, or only continued for a very short time.

6. The indications for their use are similar in atelectatic and hypostatic conditions of lung.

7. In lung emphysema and asthmatic affections they are also to be used, and subject to the same indications as for their employment in heart diseases.

Ibidem, Nos. 25 and 26.—An interesting case of merycismus or rumination, a rare disease in man, is detailed at length by Dr Alt, an assistant physician in the clinique of Professor Hitzig of Halle. The patient was 24 years of age, and for fourteen years had suffered from this affection; all food and drink in a few minutes, or a few hours, or even some days after, came back into the mouth undi-

gested. He knows about a quarter of a minute beforehand that the food is about to ascend, he feels "*wie es sich ansetzt*"—that is, "prepares for the leap." Examined carefully, all organs were healthy, with the exception of the stomach; it was somewhat dilated, and could be felt as a rounded prominence two and a half fingers' breadth below the navel; loud succussion sounds were heard, and the patient himself, by strong action of the abdominal muscles, could call forth an audible splashing which could be heard at a distance. When inflated with carbonic acid gas, the stomach, clearly contoured, could be seen for a moment, but only momentarily, with the dimensions above named; a flood of frothy, white, loudly-hissing liquid then poured from the mouth; then followed a loud eructation with a minute quantity of fluid, and the region of the stomach was again flat. A moderate ectasia ventriculi was therefore diagnosed, as also defective closure of the cardia.

As patient complained of sour eructations, pyrosis, and oppression in the epigastrium, it was considered that the chemistry of the stomach was also at fault. To settle this, a trial meal was given of soup, potatoes, beefsteak, and water and bread. Patient managed to prevent the rumination, and five hours after the meal a tube was introduced into the stomach, and immediately a stream of thick fluid was emitted. No trace of the steak was found, but abundance of the bread and potatoes. The reaction was intensely acid, the muriatic one strong, but no lactic acid could be demonstrated; the filtrate from this fluid digested albumen in twenty-five minutes. There was, therefore, defective digestion of the starches, perfect solution of flesh.

To test whether there actually was imperfect closure of the cardia, the patient, after thorough washing out of the stomach, swallowed in $\frac{1}{4}$ litre of water two living gold-fishes, about 2 to 3 inches in length. When the ear was laid over the epigastrium the splashing of the fish in their unusual basin could be heard. In a quarter of an hour the patient felt that one of the fish was about to rise; he stood with open mouth and bated breath, and in a few minutes the largest fish came out of the mouth into a vessel of water, and swam about as if nothing had happened; in other eight minutes the other fish was vomited unharmed.

Dr Alt considers that, after this experiment, no one can doubt that there was present in this man a widening and laxness of the cardia, as well as a gaping of the under half of the œsophagus when the food rose into the mouth, else the fish never could have passed through alive. Pathologically there were present in this case, therefore,—1. Moderate dilatation of the stomach, and probably strong development of its muscular fibres. 2. Defective closure of the cardia and under portion of the œsophagus. 3. A hyperacid constitution of the gastric juice alongside of good digestion of flesh and bad digestion of starches.

Patient was prescribed fasting in the morning, Carlsbad salts, and his breakfast, consisting of milk and roll, was given imme-

diately, so that it might enter a stomach still of alkaline reaction; he was directed to chew it thoroughly. His other food consisted of albuminous material and very little starchy matter; after food a few grains of bicarbonate of soda were given, and he was told to reswallow what came into the mouth.

To strengthen the muscular fibres of the under part of the œsophagus, it was faradized with the primary current, an elastic sound conveying the wire of the cathode was introduced, and it had an opening in its side out of which the sponge projected. At the first sittings the patient vomited freely, but after a few days there was none, and the sound closely fitted the under segment of the gullet, which had thus contracted. Patient was dismissed quite cured.

OCCASIONAL PERISCOPE OF THE DISEASES OF CHILDREN.

By CHARLES E. UNDERHILL, M.B., F.R.C.P.E., Physician to the Royal Hospital for Sick Children.

ON TYPHOID FEVER IN CHILDHOOD: A CLINICAL LECTURE.—It is only in comparatively recent years that this disease has been recognised in childhood, yet it is not uncommon. It differs in manifestations and course from the same disease in the adult. It generally sets in with some suddenness, and is not marked by the several days of malaise which usher it in later in life. Pain in the stomach is an early symptom. The child is often drowsy by day and sleepless at night. There is a cough due to bronchial catarrh in almost all cases. Constipation is much commoner than in adults, though diarrhœa is not unfrequent. The spleen is generally enlarged; but this is not a constant condition, even in very severe cases. The changes in the intestinal tract are not so extensive or severe as in later life, and, consequently, hæmorrhage is of very rare occurrence, and perforation still rarer. "The great characteristic in children is that typhoid fever produces deep and profound impressions on the nervous system. We have somnolence, wakefulness, headache, also changing of disposition of the child." Complications are not so frequent. One that occurs occasionally is aphasia, which, however, is usually only temporary. The prognosis is very favourable. The author believes in the possibility of abating typhoid with calomel, and claims to have done it in several cases. If he gets the case before the fifth or sixth day he gives "a large dose" of calomel, sometimes repeating it. He uses antipyrin and warm baths to bring down temperature if it reaches $103^{\circ}5$, and allows only fluid food. The disease is shorter in its course, seldom lasting over three weeks. One sequel that occurs in childhood and not in adult life is tuberculosis. "The only cases of typhoid fever which have died have been cases of this kind in my experience."—F. Forchheimer, M.D., *Philadelphia Medical Times*, 15th March 1888.

CHOLERA INFANTUM AND THE WEATHER.—In a paper read before
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the Academy of Medicine in New York, Dr Seibert brings a number of charts, of which three are reproduced, to show the influence which heat as such exercises on this disease. He shows that it is not the maximum so much as the minimum daily or monthly temperatures which demand consideration. He makes the following statement:—"1. Hot weather (either dry or moist) is not necessary for the epidemic appearance of summer-complaint. 2. Warm weather (either dry or moist), showing minimum daily temperatures of not less than 60° F., brings on the epidemic appearance of cholera infantum invariably in every year, irrespective of the height of the maximal daily temperature, as in the latter part of June in nearly every year. 3. Summer-complaint loses its epidemic character as soon as the minimal daily temperature remains below 60° F., as in the latter half of October in nearly every year. 4. Therefore this disease cannot be brought about by the direct working of high temperatures on the infantile body, but must have other causes." One of these causes, probably the most potent, is the condition of the milk, jolted about in cars and wagons, and absorbing impurities from the time it leaves the cow until it enters the mouth of the child; thus the conditions for decomposition are given in every instance without exception. To this is added the fact that, according to many observers, milk will begin to turn sour readily at 60° F. and over. It is only after some weeks of high morbidity and mortality from this disease that the public, and especially the poor, are aroused to the danger, and compelled to take even the simplest precautions for avoiding it.—*New York Medical Record*, 24th March 1888.

ON NOMA, FROM OBSERVATIONS IN THE ELIZABETH CHILDREN'S HOSPITAL IN ST PETERSBURG DURING SEVENTEEN YEARS.—This paper contains a full account of all the cases which occurred in the Hospital since its foundation, together with shorter notes of those which were brought to the out-door department. A good *résumé* is given of the remarks of previous writers who have made collections of cases, all of which tend to show that the disease is essentially a secondary one, and is preceded in a large majority of cases by some of the exanthemata, measles generally heading the list. In dealing with the pathology of the disorder, the author concludes that the nervous system plays a large part in the causation of the disease. Twenty-two cases were treated within the wards of the Hospital, out of a total of 8286 diseases of all kinds. Of these 22 cases, 19 died and 3 recovered, one of the latter dying a few months later of some other disease. In almost every case there was some previous illness to weaken and exhaust the child; thus 8 followed measles, 4 scarlatina, 3 whooping-cough complicated with catarrhal pneumonia. The treatment was in all cases directed, in the first place, to supporting the strength; of local applications no single one was found specially efficacious. In the first of the cases which recovered a permanganate of potash

solution was used; in the second, an antiseptic Listerian application; and in the third, "Magisterium bismuthi" and resorcin. Several of the cases were treated with Pauquelin's cautery. Twenty-four cases were seen during the same time among the outpatients out of a total of 207,259 cases of all kinds. Most of these died, but in some the result could not be ascertained. The ages of the patients varied from one to twelve years, and girls were more frequently affected than boys.—Dr N. Woronochin, *Jahrbuch f. Kinderheilk.* B. 26, H. 2.

PNEUMONIA CROUPOSA "A FRIGORE."—That croupous pneumonia is due to the effect of cold was for long an established doctrine. Of late years, since the discovery in some cases of Fränkel's bacillus and Friedlander's pneumococcus, the pendulum has swung round to the opposite extreme, and infective processes are credited with the production of the vast majority of cases. Two cases of the disease are recorded in this paper, which show plainly enough that cold is occasionally sufficient to give rise to it. In the Friendless and Foundling's Hospital at Cincinnati, in December last, were two infants aged respectively eleven and ten weeks, under care of their mothers. On the night of the 13th the window of the room in which they were sleeping was accidentally left open for some time while a strong north-western blizzard was blowing, and the temperature of the room became very low. At three o'clock in the morning one of the children, who had been longest in the room, was observed to have a convulsion with rapid breathing and high temperature; within twenty-four hours it was dead, and an autopsy showed intense double croupous pneumonia. The same day on which the P.M. was made, the other child was taken ill, with a high temperature, rapid and difficult breathing, and a greatly accelerated pulse. It died in forty-eight hours, and post-mortem examination confirmed the diagnosis of croupous pneumonia confined to the lower lobe of the right side. (A case similar to these is within my knowledge. A strong and healthy child, aged three months, was incautiously taken out on one of the coldest days of an exceptionally cold winter a few years ago, when the thermometer stood at 8° F. In a few hours it was seized with convulsions, and in thirty-six hours it died. P.M. showed double croupous pneumonia—C.E.U.) — H. L. Taylor, M.A., M.D., *Arch. of Pediatrics*, April 1888.

ON RELAPSING FEVER IN CHILDREN.—Relapsing fever is now so rare a disease in this country that we have to look abroad for good illustrations of it. A number of cases occurred in Warsaw between the years 1879 and 1883, 47 of which were treated at the Children's Hospital there, and of these Dr Wolberg has given an interesting account. They occurred more frequently in spring and summer than in the colder parts of the year; the sexes were equally affected, and the ages varied from 3 years up to 12, but very few of the cases were under 5 years of age. There were practically no premonitory symptoms, and the day before the

attack began the children were generally quite well. The length of the incubation period was not made out. The first attack began as suddenly as the second and third, for there were generally three attacks with two intermissions. The disease was ushered in with a violent rigor followed by headache, pains in the limbs, particularly the lower limbs, and high temperature with a dry skin; occasionally there was vomiting. The tongue was foul, the bowels confined, and there were localized pains in the abdomen. The gastric symptoms persisted during the attack, declined during the intermission, and recurred with the relapse. The liver was swollen in most and the spleen in all of the cases; and a striking accompaniment of the disease was an outbreak of *herpes labialis*. In twelve of the cases there was delirium. In only two was there any albuminuria, and in these it was probably of independent origin. The bacteria, which are a well-known accompaniment in this disease, were found in a good many cases, but were not regularly looked for. The temperature ran high during the attacks, the highest points reached being from 104° to 106° F., with evening exacerbations and morning remissions of about two degrees. On an average the first attack lasted six days, then a remission or interval of seven days; the second attack (first relapse) lasted three days, second interval seven days; third attack (second relapse) three days. There were, however, many variations in these numbers. In four cases there was absolutely no relapse, and in ten more the history was imperfect. In 33 cases there were two attacks; and in 15 cases three attacks. The end of the attacks was marked by a critical sweat, and in most cases by a rapid fall of temperature (crisis); in a small minority the temperature fell more slowly. During the intervals between the attacks the children appeared quite well, all the symptoms disappearing as if by magic. All the cases recovered. The treatment was expectant or at most symptomatic.—*Jahrb. f. Kinderheilk.*, B. 26, H. 2.

Part Fifth.

MEDICAL NEWS.

BRITISH MEDICAL ASSOCIATION MEETING AT GLASGOW.

THIS, the fifty-sixth meeting of the Association, was held in the University of Glasgow from Tuesday 7th August to the following Friday, Saturday being devoted to the usual excursions.

The proceedings commenced with the retiring President, Dr Banks, of Dublin, demitting office and introducing the President-elect, Dr W. T. Gairdner, Professor of Medicine in the University of Glasgow, who delivered an Inaugural Address in the University Hall on the evening of Tuesday. A service was held in the Cathedral in the afternoon, when the Principal of the University, the Rev. Dr Caird, preached an admirable discourse.

The various sections met the following morning (Wednesday), and at once proceeded to work. They were twelve in number, as follows:—

- A, Medicine. Prof. M'Call Anderson, President.
- B, Surgery. Prof. George Buchanan, President.
- C, Obstetric Medicine. Dr Madden, Dublin, President.
- D, Public Medicine. Dr Littlejohn, Edinburgh, President.
- E, Psychology. Dr Howden, Montrose, President.
- F, Anatomy and Physiology. Prof. Cleland, President.
- G, Pathology. Sir Wm. Aitken, President.
- H, Ophthalmology. Dr Reid, President.
- I, Otology. Dr Thomas Barr, President.
- J, Diseases of Children. Dr Cheadle, London, President.
- K, Pharmacology and Therapeutics. Dr Morton, President.
- L, Laryngology and Rhinology. Dr Semon, London, President.

In all of these excellent papers were read, and profitable discussions followed. The addresses, which always form a feature in these meetings, were delivered in Medicine by Dr Clifford Allbutt, of Leeds, in Surgery by Sir G. H. B. Macleod, and in Physiology by Prof. M'Kendrick, while additional interest was given to the department of Surgery by the special address on his Recent Investigations, by Dr M'Ewen. This constituted one of the events of the meeting. The address was illustrated by a series of patients who were in attendance, and afforded ample evidence of the lecturer's genius in the treatment of injuries of the brain, of hernia, and of deformities of the lower limbs. The other event was the presentation of a gold medal of merit to Dr Ormrod of Workington, for his gallantry in rescue work at a recent colliery accident. This was gracefully done by the President. The annual dinner took place on the evening of Thursday in St Andrew's Hall, and was well attended by the members. Among the speakers were the President, the Rev. Dr Donald Macleod, Sir Spencer Wells, Principal Caird, the President of the College of Surgeons of Ireland, Sir James King, Lord Provost; Professor Story, Dr Yellowlees, Prof. Benedikt of Vienna, Mr E. Hart, etc., etc. At a special meeting of the University, honorary degrees of Doctor of Laws were conferred on Sir Wm. Aitken, Dr C. Allbutt, Prof. Ball of Paris, Dr Banks, Dublin; Prof. Fordyce Barker of New York, Prof. Benedikt of Vienna, Mr Bridgewater, President of the Council of the Association; Dr M'Intyre of Odiham, Hampshire; Surgeon-General Dr W. C. Maclean, Dr Morton, President of the Glasgow Faculty; Surgeon-General Dr Wm. Munro, Dr Pavy, London; Sir G. N. Porter, M.D., Dublin; and Dr Yellowlees.

Conversazioni were given by the President, by the University authorities, by the Corporation, and a garden party by the Glasgow Faculty of Physicians and Surgeons—all of which were highly successful. Nothing was wanting but more genial weather to render this meeting one of the most successful ever held.

NEW WORK BY DR IRELAND.—We are glad to learn that the

Author of *The Blot upon the Brain* is preparing for publication a new gallery of Eccentric or Insane Personages who have had much influence upon men. The list will, among others, include Swedenborg, Louis II. of Bavaria, Louis Riel, Guiteau, Theodore of Abyssinia, Theebaw, late of Burma, and Malagrida.

UNIVERSITY OF EDINBURGH.—LIST OF DEGREES IN THE FACULTY OF MEDICINE.—*The following received the Degree of Doctor of Medicine*:—Charles Aitken (M.B. and C.M.), James Auriol Armitage† (M.B. and C.M.), Edmund Kemp Bourne (M.B. and C.M.), Herbert Bramwell (M.B. and C.M.), George Crichton (M.A. and M.B.), Alexander Henry Croucher (M.B. and C.M.), Thomas William Dewar† (M.B. and C.M.), Andrew James Elliot† (M.B. and C.M.), David Griffith Evans (M.B. and C.M.), Richard Herbert Joseph Fetherston (M.B. and C.M.), Ormond Haldane Garland† (M.B. and C.M.), Herbert James Gilbert (M.B. and C.M.), James Graham* (M.A., M.B. and C.M.), William Brendon Thompson Gubbin† (M.B. and C.M.), Charles Henry Gwynn (M.B. and C.M.), George Hall (M.B. and C.M.), John Berry Haycraft* (B.Sc., M.B. and C.M.), George Vickerman Hewland† (M.B. and C.M.), Robert Stephen Hubbersty† (M.B. and C.M.), James Hutcheson† (M.B. and C.M.), Frederick Miller Johnson† (M.B. and C.M.), Francis William Brandram Jones (M.B. and C.M.), Charles Ashley Scott Leggatt (M.B. and C.M.), Charles James Lewis (M.B. and C.M.), William Maxwell Little (M.B. and C.M.), George Mackay* (M.B. and C.M.), John M'Lachlan (B.Sc., M.B. and C.M.), Murray MacLaren (B.A., M.B. and C.M.), John Maitland† (M.B. and C.M.), David James Mason† (M.B. and C.M.), Angus Matheson (M.B. and C.M.), Patrick William Maxwell† (M.B. and C.M.), Thomas Cockburn Meggison† (M.B. and C.M.), William Francis Menzies (M.B. and C.M.), Alexander Cameron Miller† (M.B. and C.M.), William Henry Miller† (M.B. and C.M.), Edwin Morton (M.B. and C.M.), James Musgrove† (M.B. and C.M.), John Brady Nash (M.B. and C.M.), David Thomson Playfair (M.B. and C.M.), Thomas Henry Pope (M.B. and C.M.), John Billingsley Richardson (M.B. and C.M.), Douglas M'Kissop Ross (M.B.), George Franklin Shiels (M.B. and C.M.), George Thomson (M.B. and C.M.), Edmund Vaudrey (M.B. and C.M.), Norman Purvis Walker (M.B. and C.M.), Thomas Boswall Watson (M.B. and C.M.) *The following received the Degrees of Bachelor of Medicine and Master in Surgery*:—Robert Abernethy, James Alexander Adamson, Robert Andrew, Edward Farr Armour (M.A.), Richard Arthur (M.A.), Alexander Asher, Louis Edward Barnett,|| John Hargreaves Battersby, James Arnold Burger Bayly, Lodewijk Andries Willem Beck, Henry Anthon Becker, William Andrew Betts, Arthur James Spowart Beveridge, James Roderick Bird (B.A.), Richard Dalby Booth, Richard Laing Booth, John Thomas Borthwick, Norman Laurence Boxill (B.A.), Francis Darby Boyd, James Whiteside Bridges (B.A.), Reginald Broadbent, George M'Murdo Brown, James Kemp Brown, Arthur William Treminheere Buist-Sparks, Arthur Edwin Bullock, Alfred Charles Burnell, Thomas Wm. Butcher, George Clark Cameron, Thomas Vincent Campbell (M.A.), Frederick Harold Carlyon, David Bell Carse, William James Cattin (B.A.), Charles Henry Temple Chevallier, John Cockton, Michael Waistell Wilmshurst Cowan, James Muir Crawford, Edward Carter Cridland, Arthur John Wilson Dalzell, John Henry Deamer, Russell John Drummond, Charles Wm. Duggan, Henry Arnold Eaton, Thomas Watts Eden,|| Robert Edie, Frank Ashby Elkins, Andrew Elliot (M.A.), William Ernest Lloyd Elliott, Richard Cogswell Elsworth, John Alfred Ewan (M.A.), Charles Samuel Facey, Charles Christie Fleming, Robert Alexander Fleming|| (M.A.), Charles Melville Flide, William Fordyce|| (M.A.), James Alexander Forrest, Frederick Charles Julius Fulss, John Hill Ross Garson, Richard Julian George, Alexander Lockhart Gillespie, Andrew Gray (M.A.), Curt Grobbelaar (B.A.), Alexander Chorley Hall, Arthur Conning Hartley, Charles Edward Harvey, Thomas Daniel Hill Holmes, Walter Hume, Timothy Augustine Hynes, James Conway Jameson, Sydney Jamieson (B.A.), Charles Arthur Johnston, David John Jones, William Watkins Jones, George Kelman, Patrick James Kenna (B.A.), Thomas Looney Kennish, Eustace Julian Keogh, Alexander Livingstone Kerr, William Kinnear (M.A.), Olaf Kloster, George Knowles, John Elisha Kuhne, Daniel Johannes Kuys (B.A.), Henry Christopher Lampert, James Millar Loughton, Stephen Moister Laurence, Samuel Frank Lautré (B.A.), Arthur Septimus Lawrence, William George Laws, John Liddell (M.A.), William Lockwood, James Alfred Lowson, William Lundie (M.A. and B.Sc.), Frederick John M'Cann, Alexander Macdonald, James M'Donald, Alexander James MacGregor, George Scott MacGregor, Thomas MacGregor, John

Robertson M'Intosh (B.A.), Æneas Donald Mackay Macintyre, Alexander Maclean Mackay, David James Mackay, Donald Macleod, William Grant Macpherson, Christopher Martin,|| Kenneth Maxwell, Thomas Christopher Meikle (M.A.), James Middlemass (M.A. and B.Sc.), Alexander Miles, George Victor Miller, Vincent Milner, John Gay Moffat, John Montgomery,|| Frederick William Gisborne Morgan, Thomas Howard Morgan, Reginald Herbert Morrison, Charles Frederick Arrowsmith Moss, Robert Muir|| (M.A.), Neil Gordon Munro, Patrick Murison, Charles David Musgrove, John Van Niekerk, John Nightingale, Augustus Beauchamp Northcote, Charles Henry Leet Palk, John Charles Palmer, Thomas Clerkson Paterson, Benjamin Lewis Paton (B.A.), Julius Petersen, John Phillips, Kanta Prasad, Trevor John Pritchard, John Randle, Joseph Riley Ratcliffe, James Carson Rattray, Edward William Rayment, Arthur Gordon Reid (B.Sc.), Charles Reid, Robert Renton, William James Richardson, Richard Richmond, James Ritchie (M.A.), Andrew Robertson (M.A.), Charles Robertson, Robert Robertson, John William Rodgers, Donald Mars Morphett Ross, Robert Russell Ross, James Russell (M.A.), Robert Arthur St Leger, Gerald Septimus Samuelson, Matthew Brown Saunders, Charles Butler Beck Savory, James Foster Scott (B.A.), William Affleck Scott (M.A.), Robert Brownlee Shaw, George Shields, John Howard Slayter, Charles Allen Casterton Smelt, Edmund Moody Smith, James Smith, John Howie Smith, James Smuts, William Smyth, John Somerville, Gabriel Hendrik Steyn, Hendrik Vos Steyn, William Dunbar Sutherland, George Temple Tate, George Henry Temple, Carel Theodorus Te Water, Ieuan George Thomas, Isaac Thompson, Arthur Thomson, Albert Edward Thomson (B.A.), John Christopher Thomson (M.A.), William Tweeddale Thomson, John Townsley, David Trail (M.A. and B.Sc.), James Henry Traquair, Ninian George Trotter, Dawson Fyers Duckworth Turner (B.A.), Herbert Vine, Frederick Watson, William Muir Crawford Watson, John William Watterson, John Clarence Webster (B.A.), William Weir (B.Sc.), Ernest Neville Keys Wells, Andrew Westwood, Tom Brown White, Harry Townshend Wickham, John David Williams, Alfred Maxwell Williamson, John Hay Wilson, Robert Appleton Wilson, Robert Wise, David James Wood, Henry Stotesbury Wood, Ernest Adolphus Woodward, Walter Wynne, Robert Edward Burnett Yelf, Thomas MacCubbin Young.

* Those who have obtained Gold Medals for their Dissertations.

† Deemed worthy of Competing for the Dissertation Gold Medal.

‡ Commended for their Dissertations.

|| Passed with First-Class Honours.

UNIVERSITY OF EDINBURGH.—*The following is the official list of candidates who passed the first professional examination in July*:—Walter Adam, R. E. Adamson, E. H. Alexander, W. G. Alexander, G. B. Anderson, James Anderson (M.A.), W. H. Annan, R. H. Armstrong, I. C. Atkinson, L. J. Barbeau, H. P. Barlow, W. F. Bauchop, Hight Blundell, J. J. Brennan, T. B. Brierley, George Butters, A. N. S. Carmichael, William Carr, C. W. Chapman, P. G. Cilliers, G. A. Cohen, James O. Coker, J. W. Compton, John Cowan, J. N. Craig, Richard Davies, J. W. Dawson, E. C. Dobie, C. W. Donald, R. H. Drennan, Alfred Duke (M.A.), J. A. H. Duncan, C. C. Easterbrook (M.A.), with distinction; Samuel Edgerley (M.A.), C. R. Edmondson, R. E. Evans, R. S. Ferguson, R. W. L. Fernandez, J. L. Ferris, S. B. Figgis, L. G. Fink, H. W. Fisher, E. G. Fortune, J. S. Fowler, W. T. Fox, M. H. Foye, H. E. Fraser (M.A.), E. B. Fuller (with distinction), R. B. Gass, S. A. Gibbs, C. J. Gomes, P. C. Govinden, W. H. Gregory, Frank Grenier, Harry Grey, G. K. Grimmer, W. C. Grosvenor, A. A. S. Harriess, S. H. Hartley, Edmond Hay, H. H. Hearsey, Alexander Hendry, Sidney Hillier, A. J. Hughes, G. F. Hulme, H. S. W. Jones (with distinction), H. B. Jones, J. A. Kennedy, Edward Kinmont, H. B. Knox, J. E. Knox, L. J. Lamrock, G. R. Leighton, R. M. Leslie (with distinction), J. R. Liddell, E. S. Littlejohn, John M'Clymont, A. G. Macdonald, A. M. M'Donald, T. N. Macgowan, D. J. Mackenzie, W. C. Macknight, James Maclean (M.A.), Samuel Maclean, David Macmillan (M.A.), G. W. F. Macnaughton, D. A. C. MacPhail, H. B. Mapleton (B.A.), Charles Martin, T. G. Matthews, A. J. Meikle, David Melville, R. T. Mitchell, James Miller, W. C. Milroy (M.A.), G. H. Mitchell, L. P. More, P. St C. More, D. S. Morrison, J. D. R. Munro, William Murray, Alexander Van Niekerk, Samuel Oddie, A. A. O'Hara, T. L. Parry, C. H. Passman, D. W. H. Paterson, T. W. Pattinson, R. O. Petrie (M.A.), John Phyn, W. H. Pimblett, F. L. Pochin, W. G. Putnam, M. M. Rattray, G. P. Richards, David Ritchie, J. J. Roberts, H. A. Robertson, J. F. Robertson, William Rogers, David Rorie, A. F. Rosa, A. S. Rose, Hugh Ross, M. J. L. E. Rouillard, J. G. V. Sapp, J. B. Scott, P. W. Shaw, S. A. Shiach, J. W. Shiels, A. T. Simpson, A. S. Smith, C. E. Stephens, Riccardo Stephens, W. J. J. Stewart, W. S. Syme, J. M.

Tait, George Templeton, G. D. S. Thom, Bernard Thomas, A. C. Thomson, J. T. Thyne, Walter Tibbits, F. R. Van Langenberg, H. W. Vaughan-Williams, Andrew Walker, H. S. Walker, T. D. Walker, W. J. Walker, G. S. Walton, Godfrey Warnes, R. H. Watson, Thomas Watson, W. T. Wearing, E. J. Weightman, A. J. Wheatley, J. H. G. Whiteford, Harry Whittome, David Wield (M.A.), J. D. Williams, J. W. Williams, R. M. Williams, A. G. Wills, J. T. Wilson, R. H. Wilson, T. A. M. Wilson, W. H. Wilson, J. B. Yeoman. *The following is the official list of candidates who passed the second professional examination in July*:—F. R. B. Atkinson, C. Ayres (B.A.) T. S. Balfour, J. C. H. Beaumont, J. H. Beilby, T. P. Blades, Richard Bland, A. S. Bowes (with distinction), E. A. Braithwaite, W. E. R. Branch, T. L. Bunting, T. J. Burton, C. S. R. Cadman, Donald Cameron, George Craig, S. G. Connor, William Currie, B. E. Dalison, Walter Dickson, D. G. Douglas, A. G. Dow, Henry Edwards, Matthew Elder, B. G. Ewing, Edward Fawcett, Gerald Fitzgerald (with distinction), James Fitzgerald, W. D. Forsyth, Thomas Frankish, R. C. Fryer, Alex. Gardner, A. B. Giles, P. H. Gillies, S. A. D. Gillespie, W. E. Godber, E. M. Goldie, J. Gordon-Munn, H. W. Greatbatch, A. E. H. C. Hallen, A. H. Hallen, T. R. Henderson, George Hennan (with distinction), H. G. Huie, T. W. Iddon, Hugh Jameson, Thomas Knowles, P. M. Kyle, H. G. Langwill (with distinction), G. E. Lanyon, William Lawton, O. R. Lewis, F. W. Lyle, S. G. M'Allum, D. F. M'Bean, A. J. M'Closky, W. S. M'Dougall, J. M. M'Gill (M.A.), Dugald M'Laren, J. L. Macrae, G. B. Marshall, F. A. Maynard, W. O. Meek, H. G. Melville (with distinction), A. E. Mole, G. H. Monro, F. J. Nicoll, Maxwell Ogilvy-Ramsay, Owen Trafford Owen, J. C. Palmer, Walter Paterson, William Paterson (with distinction), E. A. Penfold, R. J. Pope (B.A.), A. F. M. Powell, J. R. M. Rae, R. R. Richardson, E. E. Roberts, J. D. Robson, R. M. Ronaldson, F. W. F. Ross, Alexander Rutherford, A. F. Rutherford, A. O. Schorn, C. W. Scott, Robert Scott, R. P. Sharman, L. M. Silver (B.A.), W. V. Sinclair, J. W. Smith, W. C. Smith, James Spencer, W. C. W. Stain, T. P. Stewart, G. W. Thompson (with distinction), F. P. Trench, S. R. Webb, Abraham Wheeler, H. H. Wilde, E. M. Wilkes, A. F. Wilson, J. J. Wilson, Richard Wyse.

ROYAL COLLEGE OF PHYSICIANS, EDINBURGH.—The following gentlemen passed their final examination for the degree in Medicine at the sittings held on 3rd August 1888, and were admitted L.R.C.P. Ed.:—Robt. Fredk. Thornton Perkins, Warwick; Harry Munyard Brownfield, Petersfield, Hants; George Crawford Helps, Bath; Wm. Benjamin Lauria, Bedford; Chas. Henry Thomas, London; George Campbell, Chilton Polden, near Bridgewater.

ROYAL COLLEGES OF PHYSICIANS AND SURGEONS OF EDINBURGH, AND FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—The following candidates passed their final examination for the triple qualification in Medicine and Surgery at the sittings held in July 1888, and were admitted L.R.C.P. & S. Ed., and L.F.P.S. Glasg.:—Walter Henry Large, Llandudno; Patrick O'Callaghan, Carndonagh, Co. Donegal; Cecil Lucius Strangman, Carriganore, Co. Waterford; Thomas Burns, Edinburgh; Charles Beyer Humphreys, Glasgow; Edwin Dowden Duffett, Glasgow; Alfred Edward Huband, Tamworth, Staffordshire; Charles Howard Jackman, London; William Vaughan Griffith, Tremadoc; Charles Basil Richards, London; Joseph Buck, Whitby; Janet Hunter, Ayr; John Westwood, Edgbaston, Birmingham; Sarah Gray, London; James M'Cartney, Partick; James Wilgar Chapman, Belfast; Bertram Brooke Hoggan, Brighton; Cuthbert Morrison, Edinburgh; Jonathan Steele, Cumberland; Montague W. S. Gunning, Partick; Patrick Rowan, Dublin; John Caldwell Thomas, M.D., Whiteabby, Co. Antrim; Herman Stedman, England.

PUBLICATIONS RECEIVED.

Catalogue of Lewis's Medical and Scientific Library. London, 1888.

W. H. DAY, M.D.,—Headaches: their Nature, Causes, and Treatment. J. & A. Churchill, Lond., 1888.

LUTHER HOLDEN,—Landmarks, Medical and Surgical. J. & A. Churchill, Lond., 1888.

WM. MARTINDALE, F.C.S., and W. W. WESTCOTT, M.B.,—The Extra Pharmacopœia. H. K. Lewis, Lond., 1888.

AMBROSE L. RANNEY, A.M., M.D.,—The

Applied Anatomy of the Nervous System. H. K. Lewis, Lond., 1888

Sir H. THOMPSON, F.R.C.S., M.B.,—The Preventive Treatment of Calculous Disease. J. & A. Churchill, Lond., 1888.

Thirtieth Annual Report of the General Board of Commissioners in Lunacy for Scotland, 1888.

University of Durham College of Medicine Calendar, 1888-89.

Part First.

ORIGINAL COMMUNICATIONS.

I.—AN IMPROVED METHOD OF MANAGING THE THIRD STAGE OF LABOUR; WITH A CRITICISM OF THE THEORY THAT THE PLACENTA IS THEN SEPARATED BY THE UTERINE PAINS.

By D. BERRY HART, M.D., F.R.C.P.E., F.R.S.E., Lecturer on Midwifery,
Edinburgh.

IN the present communication I wish to describe a method of managing the Third Stage of Labour which I have practised for some time. It is based on a new view as to the separation of the placenta, which I brought before the Edinburgh Obstetrical Society in a brief note, and more fully afterwards before the Royal Society of Edinburgh. As I am at present preparing this paper for publication in the Proceedings of the latter Society, I shall only give a brief summary of my views before going on to the practical question of management. I wish also to criticise the hitherto accepted, but in my opinion erroneous view, that the placenta is separated by diminution in area of the placental site. My only reason for doing so, however, is that my views have been criticised by my friend Dr Freeland Barbour, to whom I wish to reply. I should otherwise have contented myself with a mere statement of what I believe to be the correct opinion on this much debated point.

SUMMARY OF THE CAUSE OF THE SEPARATION OF THE PLACENTA DURING THE THIRD STAGE OF LABOUR.

1. At the beginning of labour the placenta and uterus are together to be considered as made up of the following parts, so far as the question of separation is concerned:—

(a.) *The part to be separated*, comprising—

Amnion,
Chorion,
Chorionic villi,
Intervillous spaces,
Large-celled layer of serotina.

(b.) *The line of separation*, lying between the large-celled and small-celled layers of the placenta, and termed the trabecular layer. It is formed chiefly by the persistent fundi of the uterine glands.

(c.) *The part left behind* after the placenta is separated, and consisting of the small-celled layer with remains of uterine glands, smaller in lumen, set on the uterine muscle.

2. The chorionic villi get their blood supply from the umbilical arteries of the foetus. The intervillous spaces have blood poured into them from the maternal circulation, the blood passing by the curling arteries into the spaces, and from these into the uterine sinuses by the slanting veins. The venous supply of the uterus is much more abundant than the arterial.

3. At the trabecular layer we may regard the placental area (*i.e.*, uterine surface of separated placenta) and placental site as coinciding during pregnancy, with trabecular layer joining them.

4. Separation of the placenta can only take place when there is disproportion between placental area and placental site.

5. The placenta does not separate during the First and Second stages of labour, because all changes in the placental site (diminution during pains and expansion when pain dies off) are accurately responded to by the placenta, owing to the activity of the foetal and maternal blood supplies.

6. During the Third Stage of Labour the foetal circulation is cut off and the villi are closely pressed together, showing obliteration of intervillous spaces. The increase in placental site following a third stage pain is not followed up by the placental area, as the placenta is now practically a bloodless structure.

7. The placenta does not separate on diminution of placental site to $4" \times 4"$.

8. Any diminution of site below this introduces no relative change at plane of separation. The area of the placental site and the placenta still correspond.

9. A disproportion in area between the placental site and placenta brings about tension on the trabeculae of the trabecular layer, *i.e.*, tears them.

10. This disproportion happens during the Third Stage in the relaxation following a pain, and therefore separation occurs after the pain. During the relaxation the placental site increases slightly, but the placenta, now bloodless or nearly so, does not respond: hence disproportion of area.

11. The placenta, when separated, is expelled by the pains either as Duncan or Schultze has figured.

12. All separations of placenta or membranes follow one mechanism—*"Placenta and membranes separate when there is a disproportion at the plane of separation between their area and their site of attachment. This disproportion is only slight, as the trabeculae are microscopic."*

The gist of the view advocated is that the placenta separates in the Third Stage after the pains, and is expelled, when separated, by the pains. The important practical point is that manipulation cannot separate the placenta, but can only aid expulsion.

The Management of the Third Stage deducible from the view expressed.

At the beginning of my practice I adopted Credé's method of expression of the placenta. The Credé method is intended to separate and expel the placenta. I had not tried it long when I found it most unsatisfactory. Not only did it cause bleeding by forcing blood into the lacerated tissues below the placental site, but on two occasions I expelled the placenta *minus* the entire membranes, and had to chloroform my patient and remove these manually. The error of this lay in the Credé method, which I consider the most dangerous plan possible for separation of the placenta.

I came to the conclusion, therefore, that the uterus would manage the separation of the placenta better than I could, and, accordingly, for some years I merely kept my hand on the uterus, employed manipulation of it if bleeding came on, and limited the Credé method to helping the expulsion, never employing it to separate the placenta. My guide to the period of separation was the marked decrease in the size of the uterus.

This method gave good results; why, I did not know, and I fell back for comfort on the fact, unfortunately not well enough known, that non-interference with a natural process gives better results than ignorant, though well-meant, meddling. I do not at all depreciate thorough manipulation of the uterus when hæmorrhage is taking place. I hold this to be imperative. What I condemn is quite another matter, viz., forcible compression of the uterus to expel the unseparated placenta.

The method I have now adopted gives me excellent results, and is based entirely on the view I have summarized. For convenience I shall arrange my description in the form of brief rules.

1. When the child is born, note that the fundus uteri stands at or below the level of the umbilicus, and that the uterus does not contain a second child. Give an ergotine injection in a multipara, at any rate, if labour has been slow.

2. Do not tie the cord until the child has cried freely, and then tie only one ligature.

3. Cut the cord on the placental side of the ligature, and let the placental part of the cord drain thoroughly into any small dish; then tie it, to prevent any staining of the bed linen. Tie a second ligature at once, however, if a second child be present.

4. Before applying the first ligature it should be thoroughly ascertained by abdominal palpation that the uterus is not so relaxed as to bleed.

5. Continue with the hand on the uterus; do nothing when a good contraction comes on, and allow the uterus its normal relaxation after the pain is over.

6. Should bleeding from the uterus come on, or should the

pains be feeble, then grasp the uterus so as to bring on a contraction to arrest hæmorrhage.

7. Do nothing further in a normal case until the lessening of the bulk of the uterus shows that the placenta is separated and being expelled; the expulsion may then be aided by "expression."

8. One can tell when the placenta is separated and not driven down by noting that gentle expression drives it down.

The reasons for the above treatment are as follows:—Ergotine and manipulation are used to insure good marked retraction and to empty the intervillous spaces well. The foetal circulation is aspirated thoroughly by allowing the child to cry well, and by draining the cord. These two measures give the necessary disproportion sooner, as the placenta cannot now follow up the increase in placental area during relaxation, is made as small in area as possible, and relaxation thus sooner tears the trabeculæ.

Since practising this procedure I have had no difficulty in the normal Third Stage of Labour. Interference is reduced to a minimum, and the membranes expelled intact.

I now wish, in conclusion, to answer Dr Barbour's objections to my view, and to criticise his.

"*Berry Hart* in his paper¹ brings forward a very novel theory of the mode of separation of the placenta. He makes several statements which are open to criticism. He says that we know that diminution in the placental site does not separate the placenta—a fact which (he says) my preparations demonstrate; but we cannot let this pass without qualification. These preparations show only that diminution up to a certain point (4 in. by $4\frac{1}{2}$ in.) takes place without separation. It is quite evident that there must be a theoretical limit beyond which diminution cannot go without separation; and it is quite possible, though not yet proved, that 4 in. by $4\frac{1}{2}$ in. comes near this limit. We might go a step further and say that diminution up to 4 in. by $4\frac{1}{2}$ in. may prepare the way for separation, but of this in another paper."

I still adhere to this opinion, for the following additional reasons: When the placental area is diminished to 4 in. by $4\frac{1}{2}$ in. it does not separate, and will not separate at any less area, because this smaller area introduces no further change in the relations of uterus to placenta. At the 4 in. by $4\frac{1}{2}$ in. area the placenta is firmly grasped all round, and at a less area it is only more firmly grasped, and the other relations are unaltered. When Dr Barbour says that "there must be a theoretical limit beyond which diminution cannot go without separation," he begs the whole question. This, indeed, is the fatal error in Dr Barbour's view—his predetermined idea that diminution of area causes separation. My reason for writing the short note on placental separation already alluded to was simply to protest against this assumption which is made by all investigators.

"2. If this theory were correct, the placenta should be separated by the relaxations after the contractions of the First and Second Stages. To this objec-

¹ "Note on the Mechanism of the Separation of the Placenta, etc.," *Ed. Med. Jour.*, July 1887.

tion he answers, that in these stages the foetal circulation allows the placenta to re-expand, but that during the Third the cessation of this changes the conditions. To this I reply—

“3. That the placenta remains attached where the foetus has died before labour, and where consequently the foetal circulation has ceased, as is seen in the frozen sections by Schroeder and myself.”

The answer to this is evident—the maternal circulation in the intervillous spaces is quite sufficient to make the placenta respond to all changes in its site.

“1. *The question of separation of the placenta must be kept quite distinct from its expulsion.*

“2. *Evidence is accumulating that, at the commencement of the third stage, the placenta is still as a whole or in great part attached.*

“3. *Diminution in area of its site to 4 in. by $4\frac{1}{2}$ in. does not mean separation of the placenta.*

“4. *Diminution in area beyond that + the action of the uterus as a whole on the placental mass, I regard as the formal cause; the pains of the third stage as the efficient cause of separation. Blood effusion is an accident, i.e., not essential.*

“5. *During the contractions of the third stage the surface of the placenta is thrown into heights and hollows; the heights do not necessarily mean effusion below.*

“6. *The placenta descends usually with its edge or a point near its edge first, as Duncan described; sometimes foetal surface first, as Baudelocque and Schultze described.*

“*The third stage I regard as a second labour in miniature. After the pain that expels the child comes a pause, during which the placenta is still as a whole or in great part attached; then labour comes on again, and the placenta is first detached and then expelled. This second labour is not always marked off by a distinct interval from the first, sometimes one long pain expels the child and then detaches and expels the placenta.*”

Conclusion 4 is the one on which Dr Barbour's view stands or falls. It is very remarkable that he should have come to this conclusion, as it does not follow from his paper, and he gives neither proof nor mechanism for it. He says that the placenta separates when the placental site is below 4 in. by $4\frac{1}{2}$ in., but of this there is not a tittle of evidence. No section demonstrates this, and no clinical observations can, as these are evidently misleading. Why Dr Barbour, who believes that a diminution of placental area below 4 in. by $4\frac{1}{2}$ in. is necessary to separate the placenta, should have attempted to ascertain the mechanism of separation by passing his hand into the uterus is to me incomprehensible. It would lead me too far on this subject to point out the error of such a method, but its untrustworthiness and disturbance of natural mechanism are apparent.

In addition, Dr Barbour has attempted to solve the question of separation without taking the minute anatomy of the trabecular layer into account, and omitting all consideration of the blood supply of the placenta. He regards the placenta as “spongy,” and thinks that this physical property allows expansion and diminution of the placenta when necessary. This is too vague an explanation, and gives us no definite ground. The terms contraction and retraction are not yet well defined nor understood.

By Contraction I understand that the uterine muscle diminishes in bulk, that the uterine area the muscle subtends diminishes, and that the muscle and area resume their condition prior to contraction when the contraction ceases. In Retraction the greater part of the diminution in bulk and area is retained, but not all. Dr Barbour's definition does not coincide with clinical evidence, and would make labour "tonic," which it is not. Consequently I hold that a certain amount of relaxation after retraction takes place normally.

Dr Barbour's papers have seemed to me most valuable in many respects, but his conclusions only demonstrate the futility of the attempt to explain separation as the result of diminution of placental site. As to the Third Stage being a "labour in miniature," I see no advantage in the comparison, more especially as in the Third Stage we have separation and expulsion, whereas in the First and Second stages it is merely a question of expulsion if we leave out of account the separation of the membranes over the lower uterine segment.

The view I advocate is a consistent one, explains all separations by one law, and gives clear indications for management. The management based on Dr Barbour's view should be to get the uterus to retract as much and as quickly as possible, so as to diminish the placental site and separate the placenta. Such a method would be in every way dangerous, would tend to partial expulsion of placenta and membranes, with all the dangers attendant on such a course. On this ground alone I would strongly condemn his view.

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II.—NOTES ON THE OBSTETRIC HISTORIES OF CATHARINE OF ARRAGON AND ANNE BOLEYN.

By ANDREW S. CURRIE, M.D., Lydney, Gloucestershire.

(Read before the *Edinburgh Obstetrical Society*, 13th June 1888.)

THE subject of this paper is one of purely speculative and historical interest, and not one of practical obstetrics or of practical politics, though both these subjects enter into it. And yet I venture to think that its consideration will prove of some little

use, both as tending to illustrate some points in pathology, and as throwing some fresh light on a knotty question in history, and thereby aiding in the settlement of a question which has caused the widest divergence of opinion between various historians.

Most people regard Henry the Eighth as a veritable Blue Beard—as a man of uxorious, certainly of lascivious, tendencies on the one hand, and of angry, passionate impulses on the other; as a man of strong and uncontrolled sexual instinct, who would stop short at nothing, who would not hesitate to commit crime, if necessary, to attain his desires, and who, having accomplished the gratification of his lust, soon became sated with conquest, and then was only anxious to rid himself of the woman who, once ardently desired, was now as passionately hated, and whom he was anxious to be rid of, under one pretext or another, and to supplant with indecent haste. To those who have held this view almost as a matter beyond dispute or cavil, Mr Froude's apology for Henry comes as a puzzling surprise. According to this able historian, and Henry himself could have selected no abler or more zealous apologist, the divorce of Catharine of Arragon was brought about, not by weariness of his wife, who was some years older than himself, and who does not appear to have possessed any very fascinating qualities either mentally or physically, nor by passionate desire for a young and beautiful woman, for, says Mr Froude, the king was past the heyday of his youth, and had reached an age when the conduct is ruled more by policy than by passion, but it was led up to in some part by religious scruple, and in large part by urgent reasons of State. Should the king die without male issue, and the succession thus devolve upon one frail female life, who in her turn might die a maid or early in life, or, if married, without heirs, there were not wanting claimants to the throne of England whose rival interests might renew the terrible experience of the wars of the Roses, or, more dreadful fate still from the English point of view, the hated Scottish nation might place a Stuart in the throne of the Tudors.

That it was eminently desirable in the interest of the Tudor line that Henry should leave heirs male lawfully begotten, that it would be to the interest of the English nation in no small degree, and that it was a matter of earnest desire by all parties in the State, no one can deny. I say of all parties in the State, for it would appear that the Countess of Salisbury and her adherents set up no claim to royal dignity on account of their Plantagenet descent, but were loyal to Henry as long as he was loyal to Catharine, and were even loyal to the Princess Mary when they had ceased to be so to Henry; and it was not till the rebellion of Exeter that the slightest sign was made on behalf of a rival English line.

Mr Froude tells us that Henry as a young man, considering the times and the temper of the times in which he lived, was remark-

ably free from sins of impurity. He had had one amour, it is true (which, by the way, though Mr Froude does not mention, or at least dwell on the fact, was of an adulterous nature¹), the fruit of which was the Duke of Richmond; but beyond this one indiscretion we hear of nothing to his discredit in this way.

His father, Henry VII., from mercenary motives, had brought about the marriage between him and Catharine, who was not only his brother's widow, but was by several years his senior, yet he had, with the one exception I have named, remained faithful to his marriage bed. This supposition of Mr Froude's, that Henry had indulged in only one amour, is, I think, more than doubtful, and doubts are suggested, not by historical assertions, either well or ill founded, as to the existence of other intrigues, but by the obstetric histories of Catharine of Arragon and of Anne Boleyn, by the accounts we have of the general health of Henry's children, and by the history of the king's own health. That Catharine of Arragon bore several dead children is a point which is beyond dispute. All historians concur in admitting it. But another point in regard to Henry's first wife is of great significance. If we may trust Hume (and I venture to quote him in spite of Lord Macaulay's contempt for his trustworthiness²), we find that besides her being six years older than Henry, "Catharine, by the decay of her beauty, together with particular infirmities and diseases, had contributed, notwithstanding her blameless character and deportment, to render her person unacceptable to him. Though she had borne him several children, they all died in early infancy except one daughter; and he was the more struck with this misfortune, because the curse of being childless is the very threatening contained in the Mosaical law against those who espouse their brother's widow."

It may be well to state exactly the obstetric history of Catharine. This begins after her marriage with Henry. It is scarcely necessary to do more than refer to her previous marriage with Prince Arthur, for, assuming that Catharine was infected with syphilis, the infection must beyond a doubt have occurred after her marriage with Henry. In the first place, it is highly probable that the marriage with Prince Arthur was never consummated. Arthur was only fifteen, and a sickly lad, and though Henry VII. wrote to Catharine's father that he had risked his son's health by permitting cohabitation, he probably made this statement for State reasons. Catharine herself strenuously denied that her first marriage had ever been consummated; and even Mr Froude, who thinks that her denial was untrue, admits that she courted the fullest

¹ That is, it occurred after Henry's marriage to Catharine.

² If we may judge from some remarks quoted in Macaulay's *Life and Letters*, it does not seem uncharitable to say that that writer would appear to have looked with approval on only two historians, viz., Thucydides and Lord Macaulay.

inquiry into this point. It may be well to add that Mr Gairdner, the latest writer on this subject, says,—“Although it is true that the young couple did go together to reside in the borders of Wales, it is clear, from the solemn declarations of Catharine herself long afterwards, that Prince Arthur never was her husband except in name. On 2nd April 1502, he died at Ludlow, a victim apparently to the sweating sickness, and Catharine was left a virgin widow.” But, be that as it may, it is in the last degree improbable that Arthur was at all likely at his tender age to have contracted syphilis himself. So much for this part of the question.

Henry VIII. married Catharine on 11th June 1509, he being then 18 and his bride 24 years of age.

“On 31st January 1510,” says Mr Gairdner, “Catharine was prematurely delivered of a stillborn daughter. On 1st January 1511, she gave birth to a son, who was christened Henry, declared Prince of Wales, and had a household assigned him, but died on 22nd February following. In 1513 she had another son, who soon died; and in November 1514 she had again a premature delivery. At last, on 18th February 1516, there came one child that lived—the Princess Mary; and in November 1518 another daughter was born, who must have died early.” Thus there is a history of six confinements within a period of about nine years, one only of the children surviving more than a few months.

Before leaving for the present the history of Catharine, it should be mentioned that there has never been the faintest breath of suspicion against her moral character. She appears to have been a noble minded, virtuous, and eminently pious woman, although, perhaps, she was not fascinating. Unhappily, as we all know, the same cannot be said of Anne Boleyn, but even her guilt is open to very serious question. This is neither the time nor the place to discuss matters which are of purely historical interest, but it may be said that, although Mr Froude entertains no doubt of Anne's adultery and incest, Mr Gairdner says on this point,—“The evidence on which she was condemned, however it may have satisfied public opinion at the time, would probably not have impressed men in our day even with a general belief in her guilt, much less have justified her execution.” This at any rate is certain, that on one occasion when Henry made an unworthy attempt to induce Anne to yield to his lust, she replied thus—“Most noble king, I will rather lose my life than my virtue, which will be the greatest and best part of the dowry I shall bring my husband.”¹ This attitude of maidenly dignity and reserve she appears to have maintained at least till the eve of her marriage with Henry.

Henry married Anne Boleyn on 25th January 1533, and on 7th September in the same year Elizabeth, the future Queen, was born. In 1534 Anne miscarried, and on 29th January 1536 she

¹ Miss Strickland's *Queens of England*, vol. iv. p. 182.

was delivered prematurely of a dead boy. There is something terribly pathetic in Anne's behaviour after this misfortune. Chapuys, the Emperor's ambassador, quoted by Froude, tells us that "she comforted the ladies who were weeping around her with telling them that perhaps it was for the best. The child which she had lost had been conceived in the late queen's lifetime, and there might be a question of its legitimacy. No uncertainty would attach to the next." In three years then Anne had been thrice pregnant, and only one child survived, that being the first. It is worthy of note that, shortly before the birth of Elizabeth, Anne complained to Henry because he had given her cause for jealousy, and was brutally told to shut her eyes "as her betters had done." This reference obviously was to Catharine, who had had similar cause for complaint in the matter of Henry's amour with Elizabeth Blount, and probably, according to Mr Gairdner, not on that occasion only, for, as that authority says, Henry was becoming a perfect libertine.

No obstetrician can, I think, fail to be struck with such a history as this, of repeated miscarriage in the cases of two successive wives, and it furnishes strong presumptive proof, according to our knowledge in the present day,—(1), That these miscarriages and premature deaths of Henry's children were due to syphilis on his part; and (2), That he, possibly through his children, infected Catharine with the same taint.

Playfair writes thus,—"Syphilis may unquestionably be transmitted to the foetus without producing abortion, and at term the mother may be either delivered of a living child, bearing evident traces of the disease, of a dead child similarly affected, or of an apparently healthy child in whom the disease develops itself after a lapse of a month or two. These varying effects probably depend on the intensity of the poison."¹

It is to be observed that, so far as we can know, neither Catharine nor Anne aborted. This is a very strong point in favour of my contention, viz., that Henry was the source of the infection, and that if Catharine acquired the taint (we know nothing as to Anne's fate in this respect) it was from her husband, and probably through the foetus. Spiegelberg says that when "the mother is constitutionally diseased at the time of conception . . . the foetus is usually expelled by abortion or premature labour, and is often macerated."² The same authority says that the mode of infection is worst where the mother is healthy, but the father is constitutionally diseased, although the maternal fluids appear to exercise sometimes a corrective influence, so to speak, and the children are born apparently healthy, although as a rule somewhat puny." Still stronger evidence in support of

¹ *Science and Practice of Midwifery*, 2nd edition, p. 264.

² *Text-Book of Midwifery*, New Sydenham Society's Translation, vol. i. p. 364.

my contention is given in Bäumler's treatise.¹ This author says—"The researches of von Rosen and of Jonathan Hutchinson indicate that the infection of the child is most commonly due to the father alone. E. Fränkel has also arrived at the same conclusion. . . ."

"This predominance of the paternal influence is such, that if the husband is healthy but the wife syphilitic, the probability of the succeeding offspring becoming gradually free from syphilis is greater than when, on the other hand, the wife is healthy and the husband syphilitic (Hutchinson). Further, the fact has been established by numerous observations, that a man who at the time is apparently free from disease, or has been so for a number of years, but at some former time was syphilitic, is still capable of transmitting syphilis to the child he begets."

The same doctrine is taught by other writers, among others by Dr Robert J. Lee in an essay in the 3rd volume of the *Archives of Pediatrics* ("Infantile Syphilis—the Relation between Conditions of the Offspring and Parental Antecedents"); and by Neumann of Vienna in the *Archiv f. Kinder.*, Bd. 7, H. 3; but enough has been said on this point.

I will now revert for a moment to the description given by Hume of "the decay of Catharine's beauty, together with the particular infirmities and diseases which had rendered her person unacceptable to her husband." Was this due to her own infection or not? We cannot say positively, but possibly it was so. Hume's description would fit in with the remarks of Bäumler. "The syphilis poison evinces a very peculiar modification of its action *when it operates through the fœtus, procreated by a father affected with latent syphilis, upon the pregnant mother.* Women that go through a number of such pregnancies begin gradually to suffer an impairment of health without ever being infected in the ordinary way. A modified infection ensues, etc." He then enumerates various symptoms, such as gradually increasing pallor and emaciation, alopecia, etc.² It is to be remembered, however, that, as Dr Norman Moore has shown, Catharine died of melanotic sarcoma of the heart, and this may have run a long course.

Of Henry's children who survived beyond infancy we have tolerably full details. His illegitimate son Henry Fitzroy, Duke of Richmond, died at the age of 17.³ He was a boy of singular "beauty and noble promise," but "he too passed away in the flower of his loveliness, one more evidence of the blight which rested upon the stem of the Tudors." Elizabeth seems to have enjoyed good health, but the same cannot be said of Mary. Froude thus describes her appearance at the age of 36. "Her face was broad, but drawn and sallow; the forehead large, though

¹ Ziemssen's *Cyclopædia of the Practice of Medicine*, vol. iii. p. 53.

² *Loc. cit.* p. 55.

³ Froude's *History*, vol. i. p. 389.

projecting too much at the top, and indicating rather passion and determination than intellectual strength. Her eyes were dauntless, bright, steady, and apparently piercing; but she was short-sighted, and insight into either character or thing was not among her capabilities. She was short and ill-figured; above the waist she was spare, from continued ill-health; below, it is enough to say that she had inherited her father's dropsical tendencies, which were beginning to show themselves."¹ This description is, to say the least, not incompatible with inherited syphilis, especially when viewed in the light of her mother's obstetric history, and it may fairly be asked whether the short-sightedness was not really the outcome of interstitial keratitis. Edward's pitiable history is well known. He was delicate complexioned, he was unnaturally precocious, had a projecting forehead (somewhat like his half-sister Mary in this respect), was narrow-chested, and generally constitutionally delicate. He suffered from frequent cough, and occasionally from hæmoptysis. Before his death he suffered severely from skin eruptions, from falling of the hair, and from some affection of the nails. Here, however, it is to be observed that some old woman treated him immediately before his death, and it is possible that in her ignorance of drugs she administered poisonous doses of some mineral, perhaps arsenic, but this is mere surmise. Let us now contrast the portraits of Henry's children that have come down to us with the picture which Barth draws of delayed hereditary syphilis.² (1.) Backwardness in general development, and debility at the age of puberty. (Both the Duke of Richmond and Edward VI. died at the age of puberty.) In girls the breasts are poorly developed. (This appears to have been the case with Mary.) (2.) Deformities of the cranium are frequent, the brow may be abnormally large, and the forehead square. (Squareness of the forehead existed both in Edward and Mary.) (3.) The nose may be thickened and broad, and there may be a deep depression at its root. (Mary's nose appears to have at least approached this type.) (4.) The eyes may suffer as to the cornea, there may be synechiæ, etc. (Mary's eyes were undoubtedly affected in some way.) There are many other phenomena described by Barth, but only one more shall be quoted, viz., there are frequently affections of the larynx. (Mary had a harsh, grating, strident voice, which was said to be like a man's.)

It is not fair to lay undue stress on the affections of the skin, nails, and hair, from which Edward suffered before his death, because they may have been the outcome of mineral poisoning.

We have, lastly, to consider the question of Henry's own health. In early life he was constitutionally strong and vigorous. In middle age he began to suffer from weakness, tendency to obesity and anasarca, and ulcers. The ulceration

¹ Froude's *History*, vol. v. p. 29.

² *Jahrbuch. f. Kinderh.*, B. xxi. H. 3.

appears to have shown itself first during the life of his fifth queen, Catherine Howard, but after his marriage with Catherine Parr it became inveterate. Had Henry lived in an age of greater medical enlightenment, it is probable that his sufferings would have been relieved, his dropsy removed, and his ulcers healed by a course of iodide of potassium.

I may be permitted here to allude to Mr Froude's contention on behalf of Henry, that his life had been singularly free from offences against morality. "The history of the reign of Henry VIII.," says that historian, "is a palimpsest in which the original writing can still be read." This remark may well be applied to his moral and medical history. In spite of the adulatory comments of contemporary sycophants, and in spite of the glosses of later historians, we can read the original writing.

Let us take Mr Froude's argument, and see how it accords with the facts. He writes thus,—“In nine years two queens of England had been divorced and two had been unfaithful. . . . For such a combination of disasters some common cause must have existed, which may be or ought to be discoverable. The coarse hypothesis which has generally been offered, of brutality and profligacy on the part of the king, if it could be maintained, would be but an imperfect interpretation; but, in fact, when we examine such details as remain to us of Henry's relations with women, we discover but few traces of the second of the supposed causes, and none whatever of the first. A single intrigue in his early years,¹ with unsubstantiated rumours of another, only heard of when there was an interest in spreading them, forms the whole case against him in the way of moral irregularity. For the three years that he was unmarried after the death of his third wife, we hear of no mistresses and no intrigues.² For six months he shared the bed of Anne of Cleves, and she remained a maiden. . . . The vigour of his youth was gone. His system was infirm and languid.”

Contrast this view of the case with the following facts. Henry cruelly neglected Catharine; he endeavoured to seduce Anne Boleyn, and only began to think of a divorce from Catharine when his purpose was baffled by Anne's resistance; his letters to Anne before their marriage (which have recently come to light in the Vatican) are lewd and filthy to a degree; he was notoriously in love with Jane Seymour long before he accused Anne of adultery; and it appears evident that he would have seduced Jane Seymour if he could—in fact, her friends thought it necessary to warn her. I say nothing of his marrying his third queen the day after the murder of his second. When a man has passed 50, and when, as we are told, “the vigour of his youth is gone, and his system is

¹ Henry was 28 at the date of this intrigue.

² This is not such a striking instance of temperance. Henry was 46 when Jane Seymour died.

infirm and languid," temperance ceases to be a virtue, because it is a necessity. The facts, then, all tell against Henry's virtue and temperance, at least during the vigour of his manhood.

On the other hand, it is pleasant to believe that Henry was of far different temper and disposition in his later years. His grief on the discovery of Catherine Howard's crimes was profound and genuine. From this time, indeed, down till the time of his death he appears to have been of a more kindly and gentle disposition. On his deathbed, according to one author, he was tortured by remorse for the murder of Anne Boleyn; and, according to another, he was haunted with visionary horrors, and kept muttering to himself, "Monks—monks!" Who can tell whether he was not thinking of those saintly men whom he had driven from the Charterhouse to the scaffold or into exile—thinking of them with penitent sorrow? He could not fail to think with bitter regret of his relentless wrath, which, to use Homer's words,—

"Πολλὰς δ' ἰφθίμους Ψυχὰς αἰδὶ προΐαψεν
'Ηρώων."

We may say of him what the pious King Henry VI., in Shakespeare's play, says of Cardinal Beaufort,—

"Peace to his soul, if God's good pleasure be!
Forbear to judge, for we are sinners all.
Close up his eyes, and draw the curtain close;
And let us all to meditation."

III.—THE CAUSE OF THE HEAD DOWNWARD PRESENTATION, AND OF THE FIRST CRANIAL POSITION.

By JAMES FOULIS, M.D., F.R.C.P. Ed.

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(*Continued from page 227.*)

Now, it is quite certain that up to the fifth or sixth month of pregnancy the uterus is spheroidal in form, not ovoid. (See Fig. 5.)

Sir James Simpson thus remarks, "All anatomical authorities allow that the uterine cavity before the sixth month is spheroidal and not ovoid." "Further, at the same period the uterine cavity is not only roundish in form, but is relatively much larger in regard to the fœtus, for it contains a much larger quantity of liquor amnii. After the sixth month these various conditions are gradually altered."

At this period of gestation, that is, the fifth or six month, the fœtus having abundance of room in the uterine sac, and having now a certain amount of muscular power, especially in the lower limbs, can alter its position in utero, and the changes of position of the mother will also alter the child's position in utero. If the head end of the fœtus is the heavier, this end will at once fall to

the bottom of the uterine sac directly muscular movements on the part of the foetus cease.

In the last two or three months of gestation, Dr Hunter observes, "the child is commonly so much straitened for room, and so compactly adapted to the oblong figure of the uterus, that it cannot change its general position, either by its own efforts, or even by accidents happening to the mother."

From this description, it is quite clear that there comes a period of utero-gestation when the child, instead of being quite free to move about in the liquor amnii, gradually comes to fit the uterine sac so closely that it cannot easily move about.

This of course means that its body is now in close contact with the inner surface of the uterus, and must in some places press against it. Up to the sixth month the uterine sac is spheroidal, and the foetus is free to move in it, therefore its body cannot, except temporarily, affect the uterine wall, and cannot give shape to the uterine sac, but in the last two or three months of pregnancy this state of matters is altered. We find that the uterus is now more or less oblong or obovoid, and that the foetus fits so compactly in its cavity that it cannot easily change its position.

If the foetus lies head downwards, then the uterus is obovoid in shape; if there is a breech presentation, then the uterus has another shape; and yet a different shape if there is a transverse presentation.

Now, in the last two or three months of pregnancy, has the uterus altered its shape from the spheroidal to the oval or obovoid independently of the foetus, or has the foetus, by its very rapid growth, so changed its relation to the uterine sac that its body now fits the latter so compactly that the shape of the uterine sac is determined by the shape and position of the foetus?

Sir James Simpson, Matthews Duncan, and all the leading obstetricians, agree that it is not until about the seventh month that the foetus takes up its final position in utero, and that after this time the foetus becomes less and less liable to have its position altered, either by changes in the position of the mother, or by its own muscular efforts.

From this it is quite evident that the shape of the uterus becomes fixed and determined at about the same time that the final position of the foetus is determined. We do not know of any condition of the uterine wall which causes it to change its shape from the spheroidal to the obovoid independently of the foetus.

The spheroidal form in the earlier months is undoubtedly caused by the liquor amnii distending the ovum, which fits the uterine cavity closely from the first.

We must allow that the form of the uterine sac in the earlier months of pregnancy is entirely dependent on the presence of the

growing ovum within it. Where does this relationship cease? In my opinion it never ceases. Everything tends to show that from the beginning to the end of utero-gestation the shape of the uterine sac is entirely dependent on the ovum or on the essential part of it, namely, the foetus.

What is it that determines pregnancy? Is it not in every case the fertilization, growth, and development of the ovum.

The uterus is merely the vascular surface on which the young growing ovum is placed, and by which it is surrounded. A fertilized ovum may develop in the Fallopian tube, or between the layers of the broad ligament, or even in the peritoneal cavity among the coils of the intestines. As the ovum develops it may distend the Fallopian tube till the latter bursts, and it may then grow downwards between the layers of the broad ligament. In such a case it is the growing ovum and foetus that give shape to the vascular sac which encloses them. In every case where an ovum grows it gives shape to the cavity in which it is enclosed.

Sir James Simpson in his paper has given drawings to show that the uterus assumes a certain shape, and that the foetus, in order to adapt itself to this shape, folds its limbs on its body in a peculiar way. He would have it that the folding of the limbs of the child on its body results from its efforts to adapt its shape to the shape of the uterine sac, or, in other words, that the peculiar shape of the uterine sac is *first* brought into existence, and then the foetus folds its limbs on its body, in order that it may adapt its whole body as compactly as possible to the shape of the uterine sac—thus, when the uterus assumes the obovoid form, the child's legs are so drawn up and placed against its body that the breech end of the child, with the folded limbs, fits into the large upper end of the uterine sac, and this arrangement brings about, in 96 cases out of 100, a head downward presentation.

It has been observed that the foetus in an extrauterine gestation has exactly the same form, and has its limbs folded on its body in exactly the same manner as in the case of an ordinary uterine gestation; and it is important to note the fact that the foetus in the liquor amnii *before the sixth month* has its limbs folded on its body, and the same thing is observed with all foetal animals.

It is quite impossible before the sixth month that the shape of the uterine sac can cause the limbs to be folded on the body, for at this time the uterus has not lost its almost spheroidal form. It has not at that period assumed that shape which Sir James Simpson asserts determines both the shape and position of the foetus in utero.

I do not think any one will contend that the shape of the sac in an extrauterine gestation determines both the shape and the position of the foetus, and yet the limbs lie folded on the body as naturally as if the child was enclosed by a healthy uterus in a natural gestation.

In the development of the human ovum the limbs of the foetus develop just as do the limbs of all vertebrates. Little buds appear at the sides of the body, and grow forward at right angles to the general axis of the body. The two upper buds form the rudimentary arms or upper extremities, while the two lower buds are the beginnings of the lower extremities. Both pairs of buds continue to grow forward for a time. In the case of the upper extremities the two palmar surfaces face and lie parallel to each other, while in the case of the lower limbs the two plantar surfaces face and lie parallel to each other. After a time both palmar and plantar surfaces turn inwards and then downwards, and as the limbs grow downwards they become jointed and fold up on the body. This takes place long before the foetus is of such a size that the uterine wall can in any way affect it, either as regards its shape or position; and in cases where there is a large excess of liquor amnii we find that the child's limbs are folded just as compactly as if it had fitted the uterine cavity in an ordinary gestation.

Ovarian, parovarian, and other cystic tumours, when distended by liquor amnii, or by other fluid, as a rule assume an almost spheroidal form; and there is good reason for believing that the uterine sac would also assume a spheroidal form, as it does in the earlier months, even at the ninth month of pregnancy, were it distended by liquor amnii alone, instead of by the foetus. And, lastly, it appears to me quite impossible that the thin uterine sac in the last weeks of pregnancy, filled with fluid, could exist as a pyriform or obovoid-shaped body in the presence of such great intra-abdominal pressure as must be, from time to time, thrown upon it, unless it contained some solid substance, such as the body of the foetus, to support it and give it its peculiar form.

Instead of the uterine sac assuming first a certain shape, and then causing the foetus to fold up its limbs and adapt its general form to the cavity of the uterus, all we know about the development of the foetus and the uterus rather goes to show that the ultimate shape of the uterine sac is the consequence of, and not the cause of, the folded up form and position of the foetus, and that this is true both in the case of normal and abnormal presentations.

Now, while rejecting Sir James Simpson's theory as to the cause of the head downward presentation of the child, are we satisfied with Matthews Duncan's theory that gravitation is the true cause of the head downward presentation? For my part, I do not think any theory is satisfactory which, while it attempts to give the cause of the 95 per cent. of head downward presentations, does not at the same time explain how it is that there are at least 75 per cent. of first cranial positions among these head downward presentations.

I shall now endeavour to show that the muscular power in the lower limbs of the foetus is the main factor in determining the

head downward position of the child in the later months of pregnancy, and that this same power is also the chief factor in determining the first cranial position after the head downward position has been assumed.

In the first place, let me say a few words about this muscular power in the lower limbs of the foetus. To demonstrate this power I have frequently performed the following experiment: As soon as possible after a child has come into the world, and the cord has been tied, I have taken it to a foot-bath half filled with tepid water. The child is then placed, belly upwards, on the palms of my hands, the latter being held just over the water in the bath. It will be noticed that the child lies with its lower limbs placed on the abdomen. The child, still lying on the palms of the hands, is carried horizontally towards one end of the bath until the soles of the feet are brought in contact with the cold metallic surface. Generally, directly the soles of the feet touch the cold metal, the limbs start forward with a sudden jump, and this sudden act of extension of the lower limbs against the resisting side of the bath causes the child's body to glide forward off the palms of the hands into the water, showing that if any resistance meets the soles of the feet while the limbs are being thus quickly extended, the body of the child is forced to go forward. It will also be observed that in this act of extension the limbs are also somewhat abducted.

Now, without going deeply into the muscular anatomy of the young child's limbs, it is quite certain that the glutei muscles are powerful extensors, and at the same time abduct the limbs in the act of extension. The extensors on the front of the limbs also play an important part in thus causing rapid extension of the lower limbs. If this powerful act of extension of the lower limbs can take place a few minutes after the child is born, it is quite certain that it can also take place in utero long before the full term of gestation is completed.

Sir James Simpson says,—“The position of the foetus is, I believe, certainly the result of movements which itself performs in utero; but these movements are not of a volitional, and consequently mental origin, but simply of a reflex or excito-motory character.”

It is in the experience of all that the child's lower limbs frequently press outwards with such force that the mother's abdomen is made to stand out in a conical projection at the spot where the feet lie. We must all allow that after the fourth month of pregnancy the child gradually acquires such an amount of muscular force in its limbs that, if it lies free in the liquor amnii, it can move about by such muscular power. It does move about when the mother suddenly changes her position, and also by its own muscular efforts. I do not question whether these muscular movements are volitional or of a reflex character; they are probably of

the latter nature, as Sir James Simpson has declared, but what I want to insist on is this, that as soon as the foetus has become possessed of the power of forcibly extending its lower limbs, if it has any resisting surface to push against while in the act of extending its legs the body must go forward. The foetus in utero at the fifth month is so slightly heavier than the liquor amnii that a very slight force applied to one end of it causes it to move forward, as ballotment shows. Now there comes a time, probably about the sixth or seventh month, when the relation of the foetus to the uterine cavity is such that the child cannot extend its limbs without causing the head to glide forward along the curved inner smooth surface of the uterus. It is about this time onwards that the position of the head over the os uteri begins to be taken up more and more frequently and certainly. Dubois has shown that while before the end of the sixth month the proportion of head presentations amounted to 55 in the 100, during the course of the next month they were found already amounting to 82 in the 100, and at the full time they amount to 96 or 97 in the 100.

About the fourth month, when the child has little or no muscular power in its lower limbs, as it lies free in the liquor amnii its heaviest end will certainly gravitate to the lowest part of the uterine sac; but after this, when the limbs have gained muscular power and the foetus has such a relation to the uterine cavity that it cannot extend its limbs without bringing them in contact with the inner surface of the uterine wall, the position which gravitation has given to the foetus can be and is frequently upset, and this same muscular force in the lower limbs may for a very considerable time counteract the tendency to the head downward position which gravitation is always trying to effect, for, as Matthews Duncan has shown, directly the foetus is at rest, the heaviest end of it has a tendency to glide to the bottom of the uterine sac.

That the foetus is continually moving about in these early months of pregnancy is admitted by all observers, and pregnant women will tell you that they felt "kicking" in all parts of the womb, sometimes below and sometimes above, for many months before the full time. This "kicking" means that the feet and sometimes the hands have come in contact with the uterine wall.

Now, it is true that in a number of gestations the foetus from the first assumes a head downward position as the result of gravitation, and may never move from that position; but there is a certain percentage of cases in which the position taken up as the result of gravitation may be altered either by accidents to the mother or by the strong muscular movements of the limbs of the foetus. The lower limbs and the power which resides in them are placed at one end of the foetus, while at the other end of the foetus is a smooth, globular-shaped head which can very easily glide over

the smooth, curved inner surface of the uterine wall. There is also this peculiarity about the head of the infant, the muscular power in the neck is so weak that the child before birth cannot support its head on its shoulders, and the head will thus wobble to one side or the other. If the child's body is held out horizontally, the head will gravitate downwards. The attachment of the head to the spinal column is also so peculiar, that if the foetus is lying on its back in utero and the limbs are extended, when the head is thus pushed against the wall of the uterus the chin will be made to approximate the sternum, and thus the back of the head will glide forward over the inner surface of the uterus during the extension of the lower limbs.

The shape of the uterus in the early months of pregnancy is globular, and during these early months the foetus will gravitate head downwards to the bottom of the uterine sac; but as soon as it is able to extend its legs forcibly, the position which gravitation has given to it may be altered. This is especially likely to occur when the mother is lying on her side, at which time the pregnant uterus is almost horizontal; and there comes a time when the relation between the uterine sac and the size and power of the foetus is such that the latter cannot forcibly extend its lower limbs without causing the head to glide forward over the inner curved surface of the uterus. That same force which may change a head downward presentation—the position determined by gravitation in the early months—into a breech or other abnormal one will ultimately change the abnormal presentation into the normal one again. Such is the curve of the inner surface of the uterus, that as the extensor force in the lower limbs is applied to one end of the foetus, the other or head end is forced to follow the curve of the uterine wall, and will sooner or later be directed downwards.

In the case of a head downward presentation in the last few weeks of pregnancy, the head of the child is of such a size and shape that it fits closely the lower part of the uterine sac which is surrounded by the bony pelvis, and during the further extension of the child's limbs upwards against the uterine wall the head becomes more and more fixed in its position, just as a ball is over a bony cup, and in such a position it is almost impossible that it can glide away out of the cup, because the more powerfully the child extends its limbs upwards the greater is the downward pressure and the frictional resistance between the head and the lower part of the uterine sac supported by the bony cup, and in this way the final position is maintained.

The change from the abnormal presentation, however produced, to the normal one is simply the result of the extension of the lower limbs against a more or less resisting surface. The lower part of the uterine sac being surrounded by the bony pelvis with its ilia, offers most resistance to the feet of the child during the forcible extension of the lower limbs; and when the head, bending

on the sternum, comes in contact with the inner curved surface of the uterine wall, it is quickly directed downwards, and at a certain point this downward movement is assisted by gravitation, and the natural head downward position is taken up.

Though the extensor force in the lower limbs of the child is the means by which, in the earlier months of pregnancy, the head downward presentation is frequently changed into an abnormal one, the same force, in the later months of pregnancy, is also the means by which the abnormal is again changed into the natural or head downward presentation, and is also the chief means by which the final presentation, in all positions of the mother's body, is maintained.

It is admitted that before the sixth month the living child lies in utero in a variety of ways, and that after that time the final position begins to be taken up with more and more certainty. Is gravitation not acting with the same force during the whole of intrauterine life? Certainly it is; but at a certain period of intrauterine life a new force comes into existence, which constantly upsets the position which gravitation has given to the child when in a state of repose.

If gravitation is the only cause of the head downward presentation, how is it that the child before the sixth month is found presenting in so many ways? There must be some force at work constantly disturbing the position which gravitation gives to the child, to account for the numerous presentations in the early months of pregnancy. In these early months, when the child lies in a state of repose, but has free room to move in, gravitation will determine that the head end of it will lie lowest in the uterine sac in all positions of the mother; but from the time when the child begins to use its lower limbs, as a frog does in the act of swimming through a liquid medium, there is a constant tendency for the position which gravitation has given to the child to be upset; and, as Matthews Duncan says,—“If this occurs at a time when its dimensions are beginning to approximate to those of the uterus, having overcome resistance of the uterine walls by the force of its own muscular efforts or otherwise—as by accidents to the mother—it may not gravitate back to its old and ordinary position, and thus a preternatural position may be produced.” This, I contend, is exactly what does take place very frequently; but this preternatural position is in constant danger of being again converted into the natural one by the same means that produced it, namely, by the muscular power which exists in the lower limbs of the fœtus. In the later months of pregnancy, when the child lies in a preternatural position, however produced, and its body is supported by the sides of the uterine sac, owing to its dimensions having approximated those of the uterus, gravitation would tend, while it is in a state of repose, to maintain it in that position, but the power which the child has of propelling its body forward by

the use of its lower limbs, in the way I have described, sooner or later brings about the result that the head end, or heaviest end of the child, is again directed downwards, when gravitation again not only assists in directing it downwards, but also assists the muscular force at the other end of the child in maintaining it in its final and natural position.

Gravitation alone could not account for 95 per cent. of head downward presentations. The essential factor in producing this large percentage of head downward presentations is the muscular power which resides in the lower limbs of the fœtus.

Now, all these movements of the fœtus take place quite independently of any efforts on its part to fit itself most comfortably into the uterine sac.

These muscular movements are not made with the object of determining a head downward position of the child, or of putting its body into the most comfortable position in utero, but this head downward position is the natural and ultimate consequence of the child's head gliding along the inner curved surface of the uterus while its body is being propelled forward by the forcible extension of the lower limbs against a more or less resisting and opposing surface. In this way the assumption of the natural or head downward position of the child is a vital act. Death of the child in utero at any period may result in any presentation, normal or abnormal, according to *physical* laws.

It follows, from what has been said, that the uterine sac will ultimately assume that shape which results from its embracing and enclosing the body of the fœtus in the various positions in which it may lie; or in other words, the form of the uterine sac in the last days of pregnancy is determined by the form and position of the contained fœtus.

The head downward position having been in this way brought about, we must not suppose the child's limbs are now at rest. After the seventh or eighth month it is very unlikely that the child can alter this head downward position by any muscular movements; but it is quite certain that it has the power of moving its body from one side of the uterine sac to the other, and these movements are caused by the extension of the child's lower limbs against an opposing and resisting surface. The anterior limbs also may in some degree assist in these movements; but I do not attach much importance to the power in the anterior limbs to effect movement of the child's body, as it is so feeble in comparison with the power that resides in the lower limbs.

If you look at Figure 1 you will see that Sir James Simpson has depicted the child as lying in utero, not only in the head downward position, but with its body packed away in the left half of the uterine sac, with its back turned to the mother's left side, and the child's head evidently in that position which at the commencement of labour will be called the first cranial position. He

Fig 1



Fig 2

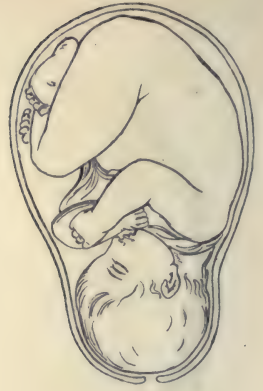


Fig 3

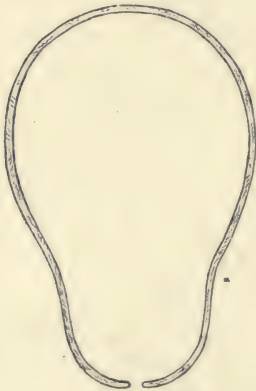


Fig 4



Fig 5



Fig 6



Fig 7
Spina Proc XI

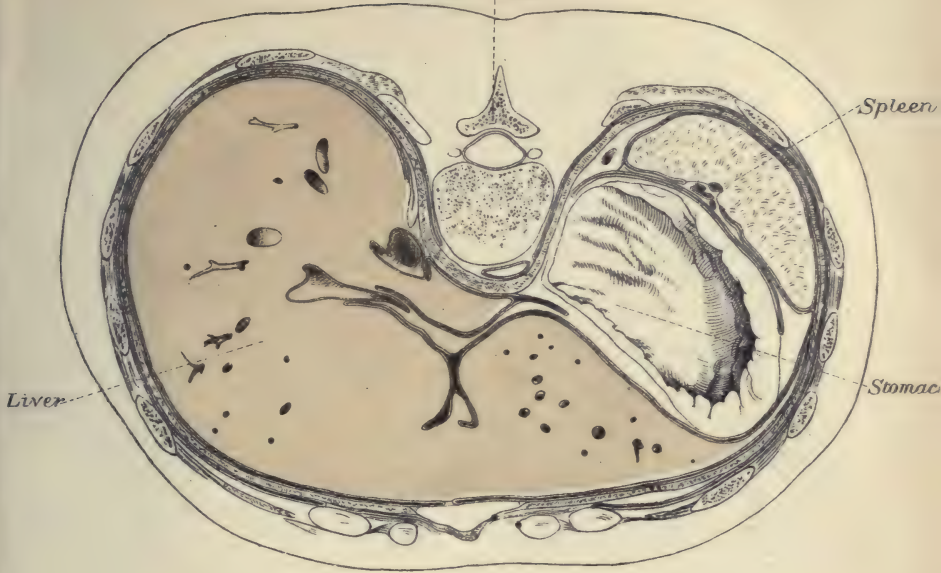
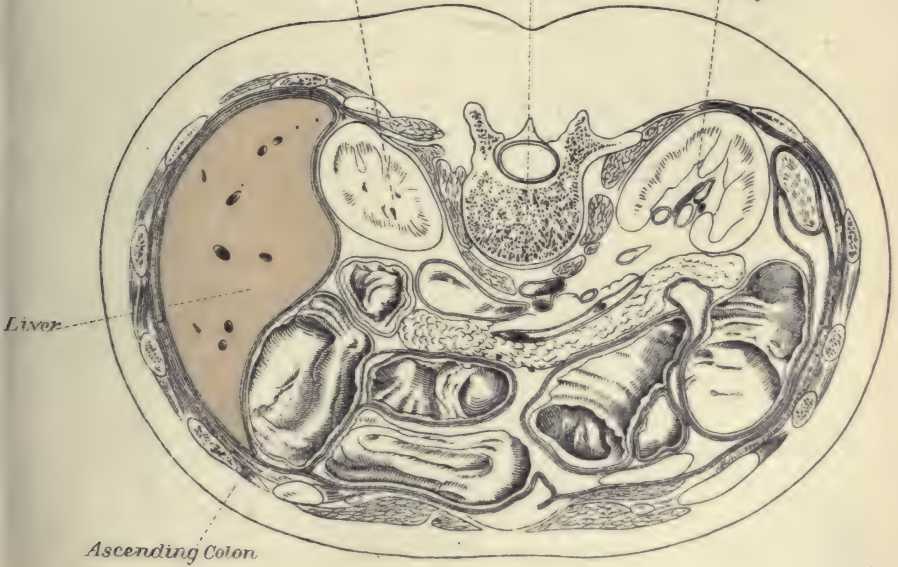


Fig 8
Right Kidney 1st L. Vertebra Left Kidney





tells us that this position results from the child making continued efforts to adapt its body to the shape of the uterine sac, and that when it lies in this position it is comfortable and as free as possible from irritation; but he does not tell us why, if the uterine sac is of the shape he has described, the child's body is not just as frequently found lying in the right half of the uterine sac, or in some other position than the one he has depicted.

Why is the child's body not just as frequently packed away in the right half of the uterus? If the natural shape of the uterine sac is obovoid as he has described it, the breech or obovoid end of the child ought just as frequently to fit into it in one way as in another,—the child's back ought just as frequently to be found in the right half of the uterus as in the left half in the last weeks of pregnancy. There must be some simple explanation of the fact that the child's body is thus so frequently found packed away in the left half of the uterus, with the head in the first cranial position. I have long since come to the conclusion that this position of the child's body and the first cranial position of its head is the result of muscular movements in its lower limbs after the child has assumed the head downward position in the way I have described.

Several years ago, when assisting Dr Thos. Keith in his ovariotomy operations, on two occasions I had the opportunity of seeing the liver in the abdomen of women in the living and natural condition. At the time I was much struck by the size of the organ lying in the right hypochondrium. I think there can be little doubt that the liver in the female when pregnant is larger than at any other time.

Lately Braune and Symington,¹ by means of horizontal sections through the frozen body, have taught us much as regards the position, size, and movements of the liver.

In speaking of the position and relations of the liver with regard to the pregnant uterus it will be necessary to refer to the investigations of Braune and Symington, and that this may be done all the more easily I have reproduced some of Braune's plates as well as the figures used by Dr Symington in his work.

In the first place, Figure 7, which is an exact though reduced copy of Braune's plate xiv., shows in section the mass of the liver and the space occupied by it in the abdominal cavity of a man "at a level near the under surface of the eleventh dorsal vertebra."

Figure 8, which is a reduced copy of Braune's plate xv., shows us in section the size of the liver and the space occupied by it in the abdominal cavity of a man at a level of the middle of the first lumbar vertebra.

Figure 9, which is taken from Dr Symington's work, shows "the

¹ Braune's *Topographical Anatomy*, and Symington "On certain Physiological Variations in the Shape and Position of the Liver."

anterior aspect of the liver of a female child aged one year and three months, with the stomach distended." This figure shows better than words can describe the shape and position of the liver in the child, and if you look at the line marked M L you will see how large a mass of the liver lies in the right hypochondrium during distension of the stomach by food or gas.

Figure 10 shows "the anterior aspect of the body of a man aged 57 years, from the level of the seventh dorsal vertebra to the umbilicus. The stomach and splenic flexure of the colon were distended." Dr Symington says, "In this case the liver was not at all enlarged, yet the right lobe reached on the right side lower than the kidney, a condition which is certainly not regarded as normal."

Figure 11 shows the posterior aspect of the body of the same subject as that shown in Figure 10.

In speaking of the general form of the liver, Dr Symington says, "Whether the stomach be empty or full the liver always retains its general form, which is that of a triangular prism. The transverse diameter is, however, considerably diminished and the vertical extent on the right side increased by a distension of the stomach. This increase in a vertical direction is what one would naturally expect from the compression of a plastic mass like the liver placed between a distended stomach and the right lateral wall of the abdomen."

I have nothing to say with regard to the movements of the liver when the stomach is distended with food or gas; but enough has been said to show that the liver occupies a very large part of the right hypochondrium in the pregnant female, and that the border of its right lobe is to be found as low as the margin of the ribs from the ensiform cartilage downwards, and, posteriorly, this right lobe overlaps the right kidney. The mass or space occupied by the right lobe of the liver at the level of the middle of the first lumbar vertebra may be appreciated by referring to Braune's plate xv., of which a reduced copy is given in my Figure 8. And there can be no doubt that in the pregnant female in the last months such is the size, form, and position of the liver that it forms a sort of cap to the pregnant uterus, covering it over especially on the fundal, back, and right lateral portions, though not actually in contact with it at any part.

If we now turn to Braune's plate xxix., which represents "a vertical section of the body of a woman 25 years of age in the last month of pregnancy," we shall find that he describes the position of the pregnant uterus as follows:—"The level of the fundus corresponds nearly to the under border of the first lumbar vertebra. A more accurate definition cannot be given, as the highest position of the uterus was not included in the section, as it inclined more to the right side."

If we now turn back to Braune's plate xv., or to my Figure

Fig 9

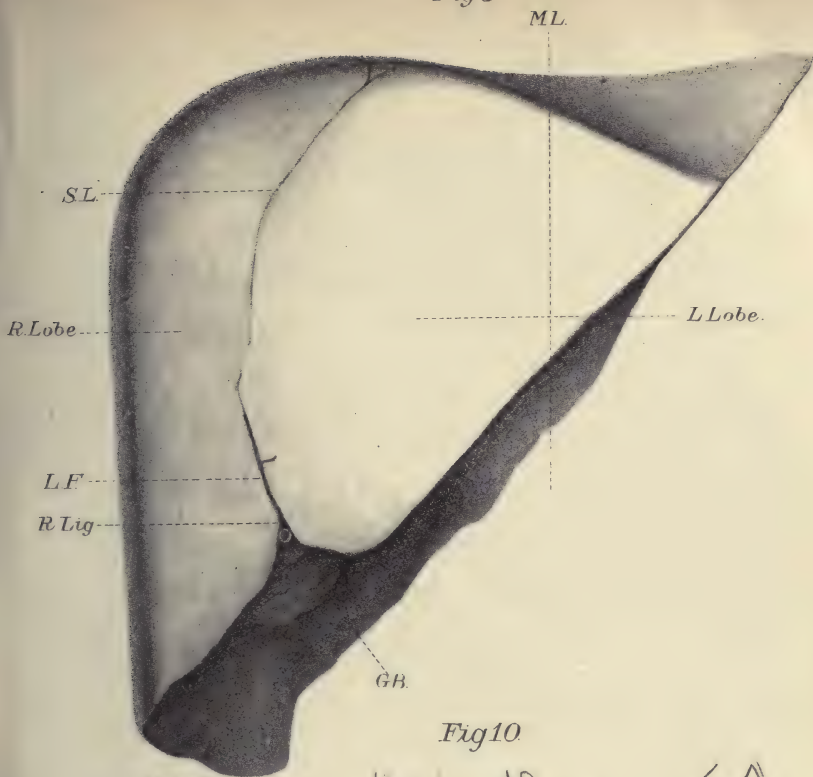
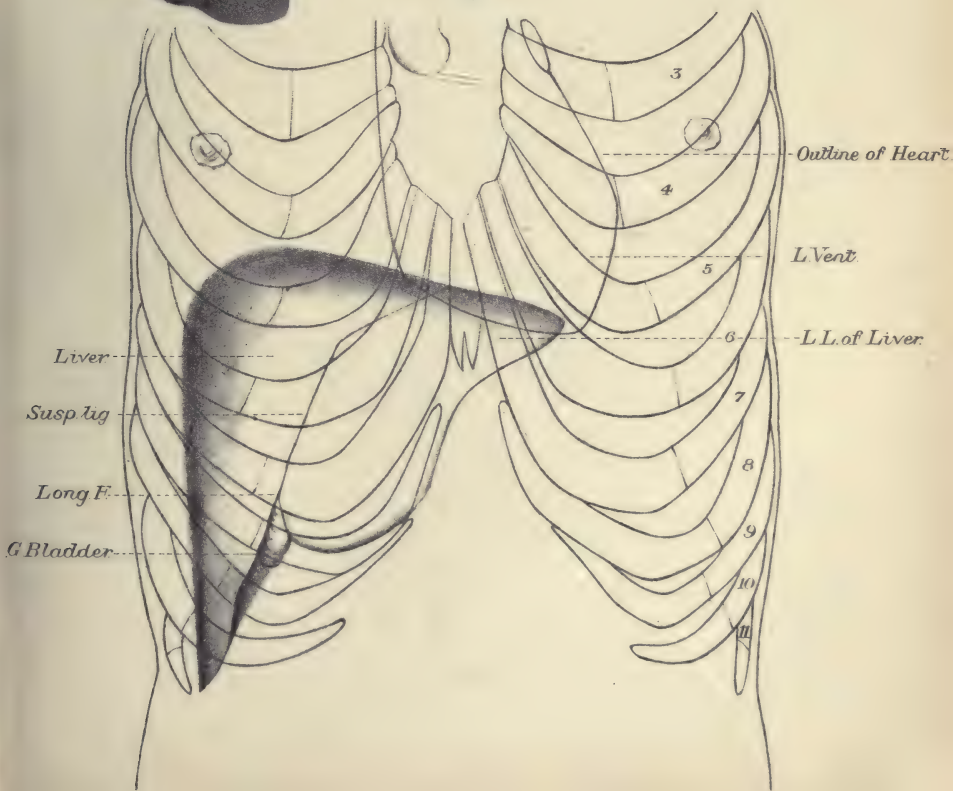


Fig 10



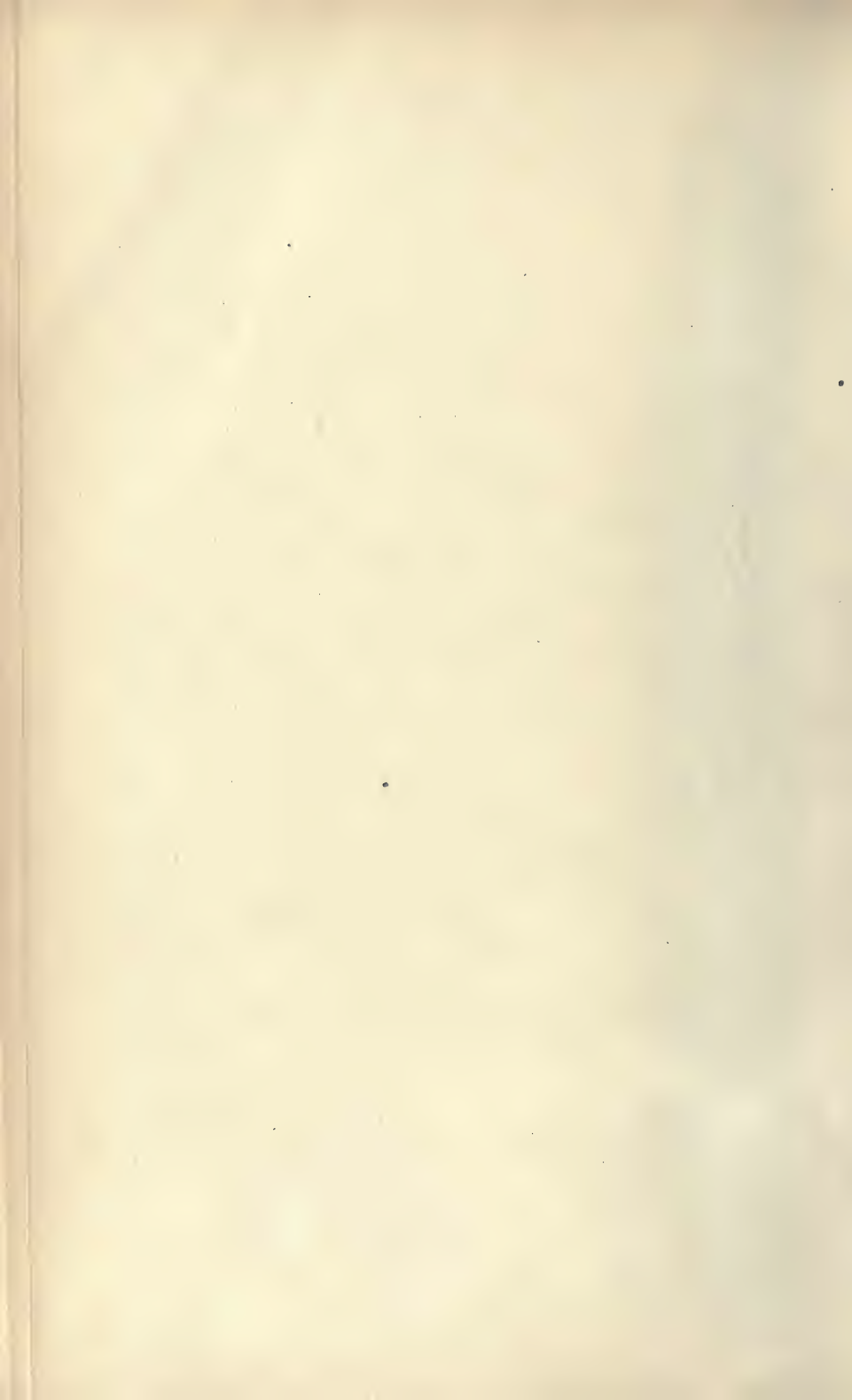
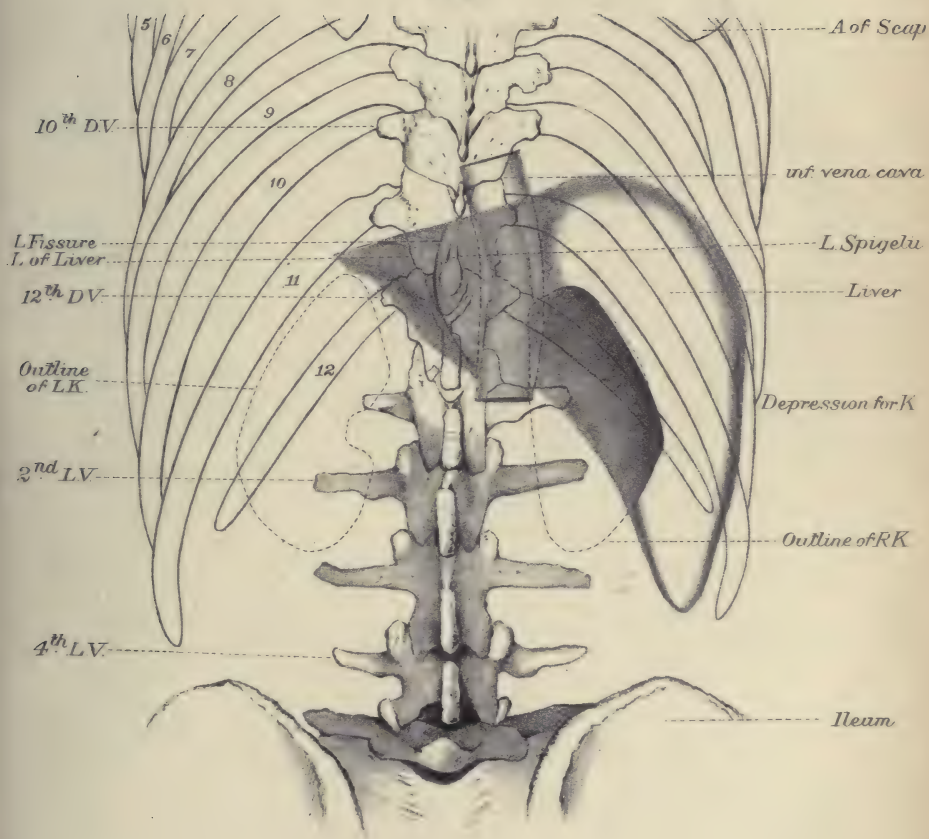


Fig 11



8, we shall see how large a part of the right hypochondrium is occupied by the liver at the level of the lower border of the first lumbar vertebra, which, according to Braune, is the height to which the fundus of the uterus reaches in the last month of pregnancy. And if we look again at Braune's plate xiv., or at my Figure 7, we shall see how large a mass of the liver lies over the fundus of the uterus at a level of the under surface of the eleventh dorsal vertebra.

From a study of these plates we can see for ourselves how great a mass of the liver lies over the fundus, and to the right, and to the back of the uterus in the last month of pregnancy. With regard to the height to which the fundus rises, Playfair says, about the seventh month the fundus of the pregnant uterus "is about two inches above the umbilicus. During the eighth and ninth months it continues to increase until it fills the entire abdominal cavity, the summit of the fundus being immediately below the ensiform cartilage." "Towards the end of pregnancy the whole of the anterior surface of the uterus is in contact with the abdominal wall, its lower portion resting on the posterior surface of the symphysis pubis. The posterior surface rests on the spinal column, while the intestines are pushed to either side, the large intestine surrounding the uterus like an arch." And Braune in his plate xxix. depicts the pregnant uterus resting on the spinal column and in contact with it as high as the second lumbar vertebra.

The upper part of the pregnant uterus thus rests on the spinal column of the mother, and is supported above and to the back and to the right side by the liver, which lies over these parts in the form of a cap, such organs or parts of organs as lie between the liver and the uterus rather assisting the liver in thus capping the uterus.

If we now look at the left hypochondrium in the pregnant female, we shall find that there is no organ in that region which can in any way give support to the upper and left parts of the uterus in the way that the liver supports the uterus in the right hypochondrium.

Now, when the child has assumed a head downward position, the head at first may lie with its long diameter in any position over the pelvic brim. It is only towards the last months that the final position is taken up with more and more frequency; but it is necessary to point out that in a large number of cases the child's head falls naturally into the position from which it may not again move—a position in which the long diameter of its head coincides with the oblique diameter of the pelvic brim, the occiput pointing to the left or the right pectineal eminence, as the case may be. The child may tumble into a natural head downward position, with its back to the left side of the uterine sac and its occiput pointing to the left pectineal eminence, the long diameter of its head lying in the oblique diameter of the pelvic

brim. From this position it may never again move, because in the last months of pregnancy, as it extends its legs upwards and outwards to the right (see Fig. 1), directly its feet come in contact with a resisting surface, as the uterine wall supported by the liver in the right hypochondrium, the child's chin, owing to the obstacles to progress in front of the head, is made to approximate the sternum, and the occipital portion descends sufficiently into the bony pelvis to become more or less impacted, as a ball in a cup, and thus the favourable position of the child in utero is maintained in spite of its own muscular movements and changes of position on the part of the mother.

In the greater number of instances, after the head downward position has been assumed, the head may rest on the rami of the pubis, or in the iliac fossæ, the final cranial position not being taken up until long after the head has taken the downward position; but as the child grows larger and its body comes to fit the uterine cavity more closely, and it gains greater power in its lower limbs, just in proportion as these things take place so there is a greater tendency for the child, by the use of its lower limbs, to push its body away from the right side to the left side of the uterine sac.

The uterine sac in the last weeks of pregnancy is an unresisting membranous envelope, except when it is in a state of contraction. The feet of the enclosed child can easily push this wall before them in the form of a conical projection. It bulges outwards when pushed by the feet of the child, and although in the last weeks of pregnancy the uterus shows constant powerful rhythmic contractions, at intermediate times it is lax and limp, and may be easily bulged out by the feet of the contained child.

Now, it is clear that that part of the uterine sac which lies to the right of the spinal column in the right hypochondrium, and is supported by the liver in the way I have described, must offer more resistance to the pushing force of the child's legs than any other part of the uterus in its upper half. This being so, there is offered, as it seems to me, a simple explanation of the fact that the child in the last weeks of pregnancy is so often found with its back to the left side of the uterine sac, and its head with its long diameter coinciding with the oblique diameter of the pelvic brim; for as soon as the child has come to lie head downward in utero, there is a constant tendency, owing to the obliquity of the uterus, for its body to gravitate forward against the abdomen of the mother, and the child's legs in the act of extension are brought in contact with the uterine wall, either to the left or to the right of the spinal column of the mother. From what has been said, if the child's feet push against the uterine sac to the left of the spinal column, the probability is that the uterine wall will bulge back into the left hypochondrium, and the child's body may not change its position, in consequence of the uterine wall at this

point being unsupported ; but should the child's feet push against the upper part of the uterine sac to the right of the spinal column, its body will move away from its position towards the left side of the uterus. And it is easy to see that if the child's body is thus pushed away towards the left side of the uterine sac, it is very likely to be kept in its new position by the continued extension of the child's legs against the same resisting surface, which in the first instance caused the body to be moved away to the left. This position becomes more and more fixed as the child becomes larger and is more straitened for room ; for there comes a time at last when a very slight extension of the child's legs brings the feet against the most resisting part of the uterine sac in its upper part.

The vertical abdominal muscles of the mother also assist in keeping the child in this position by compressing the uterus in an antero-posterior direction. As I have already pointed out, in a certain number of cases the child falls head downwards with its occiput pointing to the left pectineal eminence in the way I have described, so in a certain number of cases the child tumbles head downwards with its occiput pointing to the right pectineal eminence, and the long diameter of its head coinciding with the oblique diameter of the pelvic brim. From this last position the child *may* never again move, owing to its head being fixed in the pelvic brim ; but there is a constant risk of such a position being altered, especially in the earlier months, when the child has more freedom of movement than in the later months. By the extension of the child's limbs against the uterus in the right hypochondrium, the child's body and head may be made to glide away over to the left side of the uterine sac ; and when once there, it is seldom that the position thus gained is lost, for the continued extension of the child's limbs only has the effect of more tightly fixing both the body and the head in their new position, as has been already pointed out.

When the mother is in the vertical position, owing to the obliquity of the pregnant uterus, the back of the child sooner or later gravitates to the front of the mother's abdomen, the head at this time may be resting on the symphysis pubis, or on one of the rami of the pubis. It is easy to see that, by the forcible extension of the child's legs backwards against the uterus in the right hypochondrium, the body will be made to glide away to the left side of the uterine sac. In the act of extension the child's limbs not only push backwards but also upwards, because this act of extension is simply an attempt made to straighten the limbs. The child's body moving away to the left side also moves in a downward direction, because of this upward and backward extension of its limbs against the resisting surface.

If the mother is lying on her back in bed, the child's body still shows the same tendency to glide away to the left side of the

uterine sac, because the limbs in the act of extension will sooner or later push against the uterus in the upper part of the right hypochondrium. In all positions of the mother, horizontal or vertical, there is still the same tendency of the child's body to be pushed away to the left side of the uterine sac by the extension of the child's legs against the most resisting part of the uterus in its upper half.

In some cases those muscular movements which determined the head downward position of the child in the first instance are so directed at first that the child at once assumes this natural position in the left half of the uterus with its back against the left side of the mother. If its size holds a certain relation to the size of the uterus, then any further extension of the child's limbs not only keeps it in its place, but entirely prevents this position being lost during changes of position on the part of the mother. After the child comes to lie head downward, there is no reason why the long diameter of its head should not lie over the oblique diameter of the pelvic brim just as often with the occiput pointing to the right as to the left ileo-pectineal eminence. It would in all probability do so if there were not some disturbing cause which is constantly at work altering the position of the occiput from the right to the left ileo-pectineal eminence.

I do not say that the child's head always lies over the pelvic brim as soon as it has taken the downward presentation. As I have already stated, it may lie on the symphysis pubis or on either rami for a long time after the head is down; but there is a constant tendency in the later months for the head to slip off these parts, so as to lie over the brim of the pelvis in one or other of its long diameters; and I say that there must be some disturbing cause at work to prevent the head being found just as frequently in the left as in the right oblique diameter. That disturbing cause is to be found in the extension movements of the child's lower limbs, which result in the child's body being pushed away as far as possible from the surface which offers most resistance to the lower limbs in the act of extension.

The conclusions which I have arrived at are as follow:—The head downward position of the child in utero is the necessary and ultimate consequence of the continued extension of the child's lower limbs against the most resisting parts of the uterine sac. The first cranial position of the child's head is the necessary and ultimate consequence of the continued extension of the child's lower limbs against the most resisting part of the uterine sac in its upper part—namely, that which lies in the right hypochondrium—after the child has assumed the head downward position.

IV.—REPORT OF THE ROYAL MATERNITY AND SIMPSON MEMORIAL HOSPITAL FOR THE QUARTER ENDING 31ST JANUARY 1888.

By CHRISTOPHER MARTIN, M.B., C.M., and JOHN G. HAVELOCK, M.B., C.M.,
Resident Surgeons.

(Read before the Edinburgh Obstetrical Society, 9th May 1888.)

INTERN CASES.

DURING the quarter 80 women were delivered in the Hospital, the largest number yet delivered during any quarter. 14 of these patients were married. 45 were i.-paræ; 27 were ii.-paræ; 2 were iii.-paræ; 2 were iv.-paræ; 2 were v.-paræ; 1 was vii.-para; and 1 was a ix.-para.

Age.—(a.) Primiparæ: average age, 22 years 10 months; youngest, 17 years; oldest, 36 years. (b.) Multiparæ: average age, 25 years 8 months; youngest, 19 years; oldest, 37 years.

Duration of Labour.—(a.) Primiparæ; average duration of 1st stage, 19 hours 34 minutes; 2nd stage, 2 hours 18 minutes; 3rd stage, 28 minutes; whole labour, 22 hours 20 minutes. (b.) Multiparæ: average duration of 1st stage, 10 hours 16 minutes; 2nd stage, 1 hour 9 minutes; 3rd stage, 25 minutes; whole labour, 11 hours 50 minutes.

Presentations and Positions.

(a.) *Primiparæ.*—I. Longitudinal. (1.) Cephalic: vertex, O.L.A. 33, O.D.P. 10, head transverse in a case of rickety pelvis 1; face, 0. (2.) Pelvic: breech, S.D.P. 1. II. Transverse, 0. Total, 45.

(b.) *Multiparæ.*—I. Longitudinal. (1.) Cephalic: face, 0; vertex, O.L.A. 27, O.D.P. 5, uncertain 1. (2.) Pelvic: breech, S.D.P. 1, S.L.A. 1. II. Transverse: shoulder, Sc.D.A. 1. Total, 36.

Sex and Weight of Children.—(a.) Primiparæ gave birth to 23 males and 22 females. Average male weighed 6 lbs. 13 oz.; heaviest, 9 lbs. 4 oz. Average female weighed 6 lbs. 3 oz.; heaviest, 8 lbs. 10 oz. (b.) Multiparæ gave birth to 19 males and 15 females. The average male weighed 7 lbs. 1 oz.; heaviest, 9 lbs. The average female weighing 6 lbs. 13 oz.; heaviest, 8 lbs. 12 oz.

Length of Children.—The average male measured $19\frac{1}{2}$ inches; longest, $21\frac{1}{2}$ inches. The average female measured $18\frac{3}{4}$ inches; longest, 21 inches.

Placenta.—Average weight, 1 lb. 6 oz.; heaviest, 2 lbs. 7 oz.

Cord.—Average length, $22\frac{1}{2}$ inches; shortest, 12 inches; longest, 37 inches. Insertion in 1 case, velamentous; in 2 cases, marginal; in 4 cases, central; in 74 cases, excentric. In 1 case the cord was twice round the body; in 4 cases, once round the neck; in 1 case, twice round neck; and in 1 case, four times round the neck.

Cauls.—3 children were born with cauls.

Peculiarities of Children.—In 1 case the soft palate was cleft. In 1 case there was a well-marked spina bifida in the lower dorsal

region, the child having also extreme double talipes varus and slight hydrocephalus. In 2 cases the hymen was hypertrophied. In the first case it was prolonged into a solid elongated body tapering to a point, and measuring about $\frac{1}{2}$ inch long by $\frac{1}{4}$ inch in diameter. In the second case it projected from between the labia majora as a fan-like body, its edge being connected with the vestibule by a free band.

Classification of Labours.—Natural, 50; laborious, 22 (lingering 11, instrumental 11); preternatural, 4; complex, 3; abortion, 1.

Natural Labours.—In 7 cases the second stage was precipitate. In 1 case there was hydramnios; 4 were premature.

Laborious.—There were 11 lingering and 11 instrumental labours. Forceps (axis-traction) were applied in 5 cases for exhaustion in the second stage and threatening inertia; in 3 cases for persistent occipito-posterior position; in 1 case for large size of head; in 1 case for rigid perineum in an elderly primipara; in 1 case for rickety pelvis which came in too late for turning.

Preternatural Labours.—There was 1 transverse presentation, second pregnancy, at the eighth month, Sc.D.A. position. Professor Simpson turned. The child was still-born.

There were 3 pelvic presentations. 1 was S.L.A.; 2 were S.D.P. In one case the child was putrid; in the other cases the child was born alive.

Complex Labours.—There was 1 case of twins; patient near full time; both vertex O.L.A.; both females, and alive; one placenta, two bags of membranes.

There was 1 case of eclampsia. There was 1 case of placenta prævia with acute pneumonia. (These two cases detailed further on.)

Abortion.—One case at the sixth month; second pregnancy. Patient was delivered almost immediately she entered the Hospital, the foetus being expelled as she walked into the delivery-room. She had no signs of syphilis, but the placenta was fatty.

The case of placenta prævia was at the sixth month.

There was 1 case of threatened abortion successfully warded off. The patient left Hospital undelivered.

Premature Labours.—Two at the seventh month and putrid; 1 case at the seventh month lived 1 hour 40 minutes; 1 case at the seventh month lived 10 hours in the incubator; 1 case at the eighth month reared successfully in the incubator.

Adherent Membranes.—In 2 there was total adhesion, and in 4 cases partial adhesion, of the membranes, necessitating in all cases the introduction of the hand into the uterus. There was no case of adherent placenta.

Torn Perineum occurred in 10 cases. In 5 the tear was trifling, involving chiefly the vaginal mucous membrane. In 4 it was more severe; whilst in 1 case the laceration extended back to, but not through, the sphincter ani. Silk-worm gut sutures were used for the skin surfaces and catgut for the mucous membrane. Union

was perfect in all cases except one, in which catgut was used for the skin surface instead of silk-worm gut.

Cocaine Pessaries were employed towards the end of the quarter during the 1st and 2nd stages. They seemed to have little or no influence in relieving the pain of the dilatation of the cervix, but appeared to alleviate the patient's sufferings towards the end of the 2nd stage by anæsthetizing the perineum.

Ophthalmia neonatorum occurred in 5 cases at the beginning of the quarter; but no further cases appeared after Credé's 2% solution of nitrate of silver was used as a prophylactic.

Puerperium.—In 3 cases phlebitis of the saphena vein occurred. All did well. There was no phlegmasia.

In 1 case a brilliant scarlatiniform rash appeared on the third day of the puerperium and lasted three days. The patient had no peculiarity in the lochia and no other bad symptoms.

In 4 cases the lochial discharge became offensive, and in 3 of these slight febrile symptoms developed. In all cases the uterus was washed out with corrosive sublimate solution 1-4000, and all made a rapid recovery.

In 1 case a patient was admitted suffering from acute tonsillitis and inflammation of the middle ear. Perforation of the drum occurred. Patient, in addition, had broncho-pneumonia, and for several days was in great danger. She ultimately made a good recovery.

There was no case of puerperal fever.

Mortality.—(1.) Maternal, 2. One from eclampsia. One from placenta prævia and acute pneumonia.

(2.) Fœtal, 4. One in the case of eclampsia. One in the transverse presentation which was turned. Two premature and putrid, one being a breech case.

(3.) Infantile, 3. One died on the second day; its skin was studded with purpuric spots, and the spleen was found ruptured; the mother was syphilitic. One premature lived 1 hour 40 minutes. One premature lived 10 hours in the incubator.

The following cases call for special mention:—

I.—Case of Eclampsia.

M. S., single, primipara, 19; full time. Had scarlet fever when 8 years old. Was healthy till the early months of pregnancy, when commenced headaches, pain in stomach, and cedema of face and feet. On 20th November, about 11 A.M., had a severe eclamptic seizure, followed by coma; had then three fits in rapid succession. Was seen by a doctor, and removed in a cab to the Hospital. On admission, was semi-comatose; had cedema of face and feet; urine loaded with albumen and tube casts; was in first stage of labour; os was size of a crown piece. Chloroform was administered, when there was indication of the onset of a fit; $1\frac{1}{2}$ minims of croton oil were given; mustard was applied over the loins; patient placed

in hot pack; cervix dilated with Barnes' bags; forceps applied, and a dead child extracted about 5 P.M. No post-partum hæmorrhage.

Puerperium.—Was semicomatose after labour. Temperature, $101^{\circ}4$. Three hours after delivery, had a severe convulsion; chloral administered; was semicomatose during the night; and, as the bowels had not moved, 1 minim of croton oil was given.

21st November, 10 A.M.—Was put on digitalis and iron; was conscious and much better. Temperature, 100° ; pulse, 120; copious watery motions. In evening, temperature rose to $101^{\circ}2$; very restless and excited. Chloral was repeated.

22nd November, 8 A.M.—Patient quite comatose. Temperature, 103° ; pulse, 130, very feeble; breathing rapid and noisy; pupils contracted; lochia sweet. Uterus washed out with weak antiseptic solution. Patient remained in this state all day, and at 8 P.M. uterus was again washed out. At midnight the temperature was 104° ; pulse, 130, feeble. Antifebrin, 10 grains, given, and rapidly brought down the temperature to $101^{\circ}6$ at 1.30 A.M. (23rd November), and at 9 A.M. the temperature was $99^{\circ}4$; pulse, 114. At 4 P.M., patient semicomatose, very thirsty, very restless, breathing very rapidly (uræmic dyspnoea); pulse, 130; temperature, $100^{\circ}8$; pupils contracted; pulse very weak. Hot pack and stimulants given very freely. Copious watery motions.

8 P.M.—During last twelve hours only 6 ounces of urine excreted, highly concentrated, loaded with albumen and tube casts; rapid, stertorous breathing; contracted pupils; rapid, feeble, irregular pulse. Temperature, $101^{\circ}2$; semicomatose, which condition deepened into total coma.

9.45 P.M.—Patient died.

Summary of Dr Bruce's Report of the Post-mortem Examination.—Hypostatic congestion of lungs. Kidneys enlarged, congested, and studded with fatty points (in the second stage of Bright's disease). Cervix torn on both sides; pelvic organs otherwise healthy. Brain and cord healthy. No signs of septicæmia. Cause of death, uræmia.

II.—Case of Placenta Prævia with Acute Pneumonia.

Mrs C. M., aged 33, v.-para, had symptoms during pregnancy suggestive of commencing phthisis. Had one abortion at the sixth month, and three full-time labours. Patient was at the sixth month of pregnancy. On 8th December got wet through, had a severe rigor, followed by fever, flushed face, rapid breathing, and pain in left side. On 10th December, at 4 A.M., she got out of bed, when suddenly profuse flooding came on, with pains in the back and abdomen. She was put to bed, and the bleeding ceased to recur from time to time. About noon a doctor was called in, and found she had placenta prævia (central). He separated the placenta from the lower uterine segment and plugged the vagina. She was brought in a cab to the Hospital about 4 P.M.

On admission she was in a state of collapse, but not bleeding. The plug was removed, and a Barnes' bag introduced into the cervix, the os being about the size of a crown piece. Pulse rapid and thready. Stimulants were given; and about 5.30 P.M. Dr Hart performed bipolar podalic version, and brought one leg through a hole in the placenta. Ergot and stimulants were given. The child was born at 7.15 P.M., the placenta fifteen minutes later. The patient lost no blood after she entered the Hospital, the uterus after delivery contracting firmly.

Puerperium.—Patient rallied fairly well. Next morning, about 9 A.M., had an attack of syncope. Temperature normal. In the evening (of 11th December) the temperature was 102° ; pulse, 130; respiration, 36; pain in left side; cough, viscid sputum. On examination, the signs of consolidation of the lower lobe of the left lung were found. Mustard was applied, and stimulants given.

12th December.—Signs and symptoms of pleurisy of the right side developed; counter irritants applied. During the day the temperature remained about $100^{\circ}\cdot5$; pulse, 130; respirations, 44, not difficult. Towards midnight the breathing became more difficult, till she had complete orthopnoea; pulse rapid and feeble; foetid diarrhoea. Brandy and champagne given freely.

13th December.—In the morning: temperature, 100° ; pulse, 140; respirations, 45. In the evening: temperature rose to $103^{\circ}\cdot6$; pulse, 150; respirations, 54. Antifebrin, 10 grains, given, with stimulants freely. Towards midnight breathing became easier.

14th December.—Patient better. Temperature had fallen. Throughout the day the breathing continued to be easier. The temperature rose, however, to $102^{\circ}\cdot6$; pulse, 150, very feeble; and respirations, 56. In the evening there was great orthopnoea. Stimulants, as before, very freely given.

15th December, 4 A.M.—Temperature, 101° ; pulse, 150, very feeble; complete orthopnoea. Stimulants per rectum. Patient's condition gradually became worse; pulse more and more feeble; breathing more and more difficult. Temperature was $101^{\circ}\cdot5$ shortly before death, which took place at 11.30 A.M. (on the eighth day of the pneumonia and the 6th day of the puerperium).

Summary of Dr Bruce's Report of the Post-mortem Examination.—Very anæmic. Old pleuritic adhesions on both sides of chest, also recent pleurisy. Left lung in state of gray hepatization throughout, except a small portion at apex, which contained air. Right lung œdematous and congested. The pneumonia was not a septic pneumonia. Right side of heart distended with clotted blood. Slight recent perihepatitis. Cloudy swelling of kidneys. Pelvic organs healthy. There were no signs of septicæmia. Cause of death—heart failure, due to (a), loss of blood from placenta prævia; (b), acute lobar pneumonia.

EXTERN CASES.

During the quarter 181 extern cases were reported. Of these 40 were primiparæ, 141 were multiparæ.

Classification of Labours.—Natural, 147; laborious, 14 (instrumental 10, lingering 4); preternatural, 6; complex, 8; abortions, 6.

Presentations.—Cephalic: vertex, 175; face, 1. Pelvic: breech, 6; doubtful, 3.

Positions.—Vertex cases: occipito-læva-anterior (O.L.A.), 155; occipito-dextra-posterior (O.D.P.), 18; occipito-dextra-anterior (O.D.A.), 2. Face case: mento-læva-anterior (M.L.A.), 1. Breech cases: sacro-læva-anterior (S.L.A.), 5. Doubtful, 1.

Details.

Instrumental Labours.—Forceps were used in 10 cases—in 3 for uterine inertia, in 4 for persistent occipito-posterior position, in 1 O.D.P. case where the head was jammed in a transverse position, once for rigid perineum, and once for scoliotic pelvis with contracted outlet.

Lingering Labours.—One was a face case; the others were due to rigidity of the cervix.

Preternatural.—All breech cases. In 2 cases the child was premature and still-born.

Complex.—Twins, 3; twins and P.P. hæmorrhage, 1; eclampsia, 2; prolapsus funis, 1; accidental hæmorrhage, 1.

In one twin case the first child presented by the breech, and was still-born; the second presented by the vertex, and survived.

In another twin case forceps were applied to the head of the first child; ergot was then given, and the second was born naturally.

In the case of prolapsus funis the head lay in O.D.P. position, and as the cord could not be replaced, and was slowly pulsating, forceps were applied, but the child was still-born.

(The remaining complex cases are described in detail below.)

Abortions.—Two at the third month, 3 at fifth month, 1 at the sixth month. In 1 case at the third month the fœtus had been born eight hours before medical aid was called in, but the placenta and membranes were still in utero. As the cervix only admitted the tip of one finger it was dilated digitally under chloroform, the whole of the secundines were removed, and the uterus washed out with hot corrosive sublimate solution. Patient made a rapid recovery.

Delay in the Third Stage occurred in 15 cases. In 5 cases it was necessary to introduce the hand into the uterus to detach and remove an adherent placenta, and in 3 cases to remove adherent membranes.

Sex of Children.—Males, 104; females, 81.

Peculiarities.—The largest child weighed 11½ lbs.; and was 27 inches in length; it was delivered naturally. A still-born premature child had a rudimentary forearm and palm on the left side with only two fingers. In one case the omphalo-mesenteric

vessels were persistent, and could be seen coursing from the umbilicus down the cord to the remains of the umbilical vesicle—a small yellow shotty nodule situated on the foetal surface of the placenta, just beneath the amnion, near the margin of the placenta.

Mortality.—Maternal, 5 (2 from eclampsia; 1 from pulmonary embolism, 1 from accidental hæmorrhage, and 1 from post-partum hæmorrhage). In 3 of these cases assistance was not sent for to the Hospital till the patient was moribund. Foetal, 8; 6 occurred in complex labours; 2 were premature and syphilitic.

The following cases demand special description:—

I.—Case of Femoral Venous Thrombosis followed by Pulmonary Embolism.

A. M., single, æt. 17, i.-para; a small delicate girl at the full time. Membranes ruptured early; first stage lasted 40 hours; during second stage patient was much exhausted; forceps were applied, and a living female child extracted. Patient rallied well, but on the third day the pulse was found to be 150, and temp. 99°·6, and there was a foetid discharge from a tender uterus. The uterus was washed out with 1–4000 corrosive sublimate; next day the pulse had fallen and the discharge was sweet. On the sixth day patient complained of shooting pains in the left leg, and extreme tenderness in Scarpa's triangle. The femoral vein was found swollen, hard, and tender; pulse rapid and feeble, but the temperature never rose above 100°. No rigors, no vomiting, no peritonitic symptoms, but there was pain on left side of pelvis. This condition continued until the eleventh day, when as the student was palpating the thrombosed vein, the patient was suddenly seized with great dyspnoea, and became collapsed. Stimulants were given freely, but death took place in 45 minutes. A post-mortem examination could not be obtained, but it is probable that a clot had been detached from the femoral vein, and caused death by pulmonary embolism.

II.—Case of Accidental Hæmorrhage at Eighth Month.

Mrs C., æt. 36, v.-para; had a severe flooding after first child, and 10 months ago had serious hæmorrhage after an abortion; since then she has been very anæmic. On 21st January, about 8 P.M., she was in a crowded street, when she suddenly felt very faint, and had to be taken home. She was put to bed, vomiting, and complaining of pain in left side of abdomen, and it was then noticed that blood was escaping from the vagina. During the night there was hæmorrhage at intervals; about 4 A.M. she had a severe rigor, and stimulants were given. At 5.30 A.M. the house surgeon was sent for, and found her almost collapsed, extremely anæmic, and restless, complaining of severe pain in left side of uterus. Blood was escaping from the vagina, and the uterus was found to be very tense, and P.V. the os about the size of a crown-piece, the cervix thick and rigid, the membranes unbroken, and

the head presenting. The placenta could not be felt. Stimulants were given and the patient anæsthetized. Dr Hart, who had been called, then ruptured the membranes, dilated the cervix, and effected delivery with the forceps as rapidly as possible. The placenta came away immediately afterwards, and with it about 2 lbs. of blood-clot. Hæmorrhage was checked by the hot douche and ergotine; stimulants were again given, and the patient rallied somewhat, but died in the course of an hour apparently from loss of blood and shock. The child was still-born.

III.—*Case of Twins followed by Post-Partum Hæmorrhage; Death next day from Syncope.*

Mrs C., æt. 42, xiv.-para; about full time, went into labour on 2nd January, and was delivered of the first child alone, being found by a friend on the floor. She was put to bed, and the second child followed in an hour. The student on arriving about an hour later found the placenta not yet born, and that she had lost much blood and was still bleeding freely. The uterus was compressed, ergot administered, and hot douches given, but the bleeding still went on. The house-surgeon saw her three hours after the birth of the second child, then almost moribund, intensely pale, restless, the pulse almost imperceptible, the placenta still in utero, and the uterus large and full of clots. Stimulants and ergotine were given hypodermically, and the placenta at once detached and removed by the hand. Hot antiseptic uterine douche given. All hæmorrhage at once ceased, and the uterus contracted firmly. The patient rallied well, but next day, during the temporary absence of her nurse, sat up in bed, made some sudden exertion, and fell back in a state of syncope, dying 19 hours after delivery.

IV.—*Case of Eclampsia at the Eighth Month; Recovery.*

Mrs F., æt. 30, iii.-para. Previous labours normal. When about three months pregnant she had scarlet fever followed by dropsy, headaches, and gastralgia. Early in the morning of 4th November she became very excited and almost maniacal. At 6 A.M. had a severe eclamptic convulsion followed by deep coma. Fits recurred about every hour. At noon the house-surgeon found her comatose; face and feet cedematous, with copious albuminuria. Pulse was strong, and there was no cedema of the lungs. She was put into a hot pack, two minims of croton oil given, and $\frac{1}{4}$ gr. of pilocarpin hypodermically, producing copious watery motions and very profuse perspiration. The coma passed off in about three hours, and she again became very excited. Chloral and bromide of potassium, of each 20 grs., were given, and she became quieter. In the evening she was quite conscious and sensible, and there was no recurrence of the fits. Next morning she was greatly improved, there was much less œdema, and the albumen was not so copious. Her bowels were kept open with pulv. jalap co., a diuretic mixture was given, and she was put on

milk diet, with the result that a month later she was delivered of a living child, the labour quite natural and puerperium normal.

V.—*Case of Eclampsia.*

J. H., single, æt. 17, i.-para; a full time. Had diphtheria and measles when 2 years old, followed by dropsy, and has since then been delicate. For the last few months has had severe headaches and violent sickness, and has been very excitable and given to outbursts of passion. On evening of 2nd January was very excited; pains commenced at 2 A.M. 3rd January, and at 3 A.M. she had the first fit, after which she never recovered consciousness. At 6.30 she had another fit, and a student was called in. At 7 A.M. had fit, and at 7.15 and 7.45, and at 8.10 and 8.40 A.M. At 9 A.M. the house-surgeon found her comatose, in 2nd stage of labour, pains weak and irregular, head in pelvis and not advancing, with œdema of face and feet; urine bloody and loaded with albumen; pulse, 140 and soft. Two minims of croton oil were given. At 9.30 severe convulsion. Forceps were applied at 9.40, and the child born at 10 A.M. There was a slight tear of perineum and some post-partum hæmorrhage. Child was male, mature, and still-born. Patient was put in a hot pack, and 3j. of ether injected. At 12.45 P.M. had a severe convulsion, for which chloroform was given. At 1.20 the temp. was 104° , and at 1.50, $104^{\circ}8$; pulse rapid and feeble. Ether was again injected, and 10 grs. of antifebrin given in brandy. At 2.30 P.M. chloral was given; respirations were 54. At 3 P.M. temp. was $105^{\circ}2$; respirations, 64, stertorous; pulse, 142 and very weak. At 3.15 P.M., $1\frac{1}{2}$ ℥ of croton oil given, as previous dose had not acted. At 4 P.M. temp. was 107° , and patient deeply comatose; respirations, 62, stertorous; pulse, 146. Antifebrin 10 grs. were given. Patient died at 4.30 P.M., six and a half hours after delivery.

VI.—*Case of Eclampsia; Turning; Death.*

Mrs B., æt. 42, xiv.-para; eight months pregnant. Previous labours normal. During last few weeks has had œdema of face and feet, headaches, and incessant vomiting. On 13th January at 11 P.M., whilst in the street became very giddy and went home. About midnight had a convulsion, became comatose, never again recovering consciousness. The fits recurred at intervals of 1 to 2 hours throughout the whole of 14th January. At midnight her friends sent to the Hospital, and the house-surgeon half an hour later found her comatose, eight months pregnant, the os about size of a crown-piece, the cervix thick but not rigid, and the head presenting. Pulse slow, of high tension; face cyanotic; pupils contracted; conjunctiva insensitive. Urine was concentrated, smoky, and loaded with albumen. A few minutes after his arrival she had a violent convulsion. Croton oil 2 ℥ were given, and she was put in a hot pack. Dr Hart saw her at 1.30 A.M., and advised to have her delivered as soon as possible. A little

later she had well-marked Cheyne-Stokes respiration. The cervix was dilated with Barnes' bags, and int. podalic version performed. The child was premature, dead, and delivered at 4.40 A.M. The placenta followed in fifteen minutes; post-partum hæmorrhage trifling. The croton oil was repeated, and she was put into a hot pack, digitalis fomentations were applied to the loins, and ether injected. This caused profuse perspiration. She, however, remained comatose, and died at 10.30 A.M., 15th January. A post-mortem examination could not be obtained.

V.—CASE OF ACUTE PHTHISIS WITH LARGE CAVITIES IN AN INFANT NURSED BY A PHTHISICAL MOTHER.

By JOHN THOMSON, M.B., C.M.

(Read before the Edinburgh Obstetrical Society, 11th July 1888.)

ON 29th January 1887 I was called to see an infant of 9 months (R. G.) with an ordinary sharp attack of vomiting and diarrhoea. I examined his lungs carefully, and they seemed perfectly normal; there was no dulness, no crepitations, no acceleration of breathing. The vomiting and diarrhoea were easily checked, and in six days he had returned apparently to his usual, not very robust, state of health.

On 5th March (five weeks after I first saw him) I was again asked to see him on account of cough, wasting, and fretfulness, and was told the following history:—

History.—With the exception of the above-mentioned illness and an occasional short cough, he had always been quite healthy since birth, though never robust. His mother, who was suffering from phthisis when he was born, nursed him for six and a half months, then weaned him, because she was so weak, and died in the Infirmary a fortnight later. She had not at any time sores on the nipple or breast, nor anything else the matter with them. (This was confirmed by the nurse who had attended to her in the Infirmary.) She was frequently found fault with by the relative who nursed her at home for coughing “right into the baby’s face.” After he was weaned, the child was given cow’s milk, and seemed to have been carefully and well looked after. The cough, etc., had begun three weeks before, *i.e.*, one week after he recovered from the gastro-intestinal attack.

Family History.—He was an only child. His father was healthy, and gave no family history of phthisis. His mother’s mother, brother, and two sisters had died of phthisis, and two other sisters were suffering from it.

Condition on Examination.—He was a tolerably well-developed child, though pale and thin. His head was held slightly, but persistently, a little backwards and to the left side. The breathing was very rapid. The thorax was well formed, and neither here nor elsewhere was there any sign of rickets. The right apex was quite

dull on percussion above the level of the third rib anteriorly, and to a corresponding extent behind. The breath-sounds were intensely bronchial, and there were numerous coarse crepitations. The rest of the right lung and all the left seemed quite normal. The abdominal organs and heart were normal. The temp. (in rectum) $98^{\circ}8$.

Progress.—I saw him repeatedly after this, and he rapidly got worse. A week after (12th March), the dulness and other morbid signs had spread considerably downwards, and were very marked in the right axilla and interscapular region. Temp. $102^{\circ}5$.

On the 14th, the breathing at the right apex was cavernous, and the crepitations had a metallic sound.

On the 22nd, he was much wasted and distinctly cyanotic. Pulse, 184; resp., 72; temp., $103^{\circ}3$. His head was more retracted than formerly. He was sweating a little. There had been no diarrhoea, and the cough was not at all severe. Owing to his weak state, his left lung was not examined.

On 25th March he died.

I had to leave town the day before his death, and the post-mortem was kindly performed for me by Drs Wm. Hunter and Geo. Mackay.

Post-Mortem Appearances.

Right Lung.—One-third of an inch from the root of the right lung, at the junction of its upper and middle lobes, there is a large oval cavity, which reaches to the pleural surface. It measures $1\frac{3}{4}$ inches from above downwards, and $1\frac{1}{4}$ inches from side to side. The walls are sloughy and ragged, with numerous bridges of tissue, and it contained a large quantity of pultaceous caseous material. It is surrounded on all sides by numerous smaller cavities which communicate with it. The apex of the lung is almost entirely taken up by three separate cavities, varying in size from a bean to a large hazel-nut, and resembling the larger one just described in character and contents. The rest of the lung is filled with caseous patches, and numerous smaller cavities, with the exception of the anterior 2 inches of the middle lobe, and the posterior two-thirds of the lower lobe, which are almost unaffected.

Left Lung.—There is a cavity the size of a hazel-nut situated near the root. At the apex there is another about half that size; and throughout the rest of the lung there are more than a dozen others larger than a pea, and many more smaller ones.

There was a considerable amount of recent pleurisy, especially over the large cavity on the right side.

The bronchial glands were much enlarged, and entirely converted into pultaceous caseous matter.

In the liver there were a few caseous patches with soft centres, some of which were the size of a pea. Round these, tubercles were seen on microscopic examination.

No further evidence of tubercle was found in the abdomen, and the other organs appeared normal on naked-eye examination.

The brain was not examined. This is unfortunate, as the persistent head retraction pointed to intracranial disease.

Remarks.—The case is an interesting one, both from a clinical and pathological point of view. Although tubercle is so extremely common in infancy, the occurrence of phthisis with large cavities is very rare indeed. I would draw attention to three points:—

1. The extraordinary rapidity with which the disease progressed. Eight weeks before death, no abnormal physical signs were discovered on examining the lungs, and the breathing was not accelerated. So that, although there may probably have been a considerable amount of tubercle in the thorax when the child was first seen, there cannot have been any extensive consolidation present in the lungs at that time.

2. The absence or slightness of several symptoms characteristic of the disease in adults, such as hæmorrhage, diarrhœa, cough, and sweating.

3. The position of the largest cavities at the root of the lung is, I believe, characteristic of this disease in infants.

With regard to the possible mode of infection in this case, it is interesting to put side by side—(1), the absence of any morbid condition of the mother's breast or nipple, and the very small amount of disease found in the child's abdominal organs; (2), The fact that the mother was frequently found fault with for coughing in the baby's face, and the enormous extent to which the respiratory system was affected.

VI.—EARLY CONTRIBUTIONS OF ANATOMY TO OBSTETRICS.

By A. H. F. BARBOUR, M.A., B.Sc., M.D., F.R.C.P.E., Lecturer on Midwifery and Diseases of Women, Edinburgh Medical School; Assistant Physician for Diseases of Women to the Royal Infirmary; Junior Assistant Physician to the Maternity Hospital; Physician to the Women's Dispensary; Inspector of Examinations in Midwifery; Corresponding Fellow of the Royal Academy of Medicine of Turin.

(Read before the *Edinburgh Obstetrical Society*, 9th May 1888.)

(Continued from page 236.)

Galen, who was born at Pergamos in Asia Minor in 130 A.D., lived under Hadrian, the Antonines, Commodus, and Severus. Although distinguished in human anatomy generally, he neglected altogether the anatomy of the female pelvis. In the section, *Γαλήνου περὶ μήτρας ἀνατομῆς βιβλίον*,¹ he begins as follows:—

“We shall treat of the situation of the uterus, its size and form, whence it hangs, how it is nourished, to what it is attached, what it touches, what things surround it, and what things are produced in the womb during pregnancy round the chorion and membranes embracing the foetus.” He describes the uterus as extending above with its fundus to the umbilicus,

¹ Tom. ii. of the complete edition of his works, comprising 20 volumes of the *Medicorum Græcorum Opera quæ exstant*: Editionem curavit D. Carolus Gottlob Kühn, Lipsiæ 1827.

below to eleven fingers'-breadths from the vulva, and reaching with its horns to either ilium. In describing its form also, he says that the shape of the fundus is like the bladder, but that it has mammary processes extending towards the ilia. Further on, he says that "in woman and in other animals which are like to women in the uterus, such as goats and cattle, foetuses are found not in horns but in the rest of the whole cavity." "But these (as I think) mix up and suggest to the mind absurdities, since they cannot explain the use and action of the horns. And as my discourse would be too long and also unequal if I spoke of the use and action of the horns and not of the other structures round the uterus, on that account this subject is to be deferred to another treatise."

From the foregoing it will be evident that Galen had never opened a female pelvis, and it is remarkable that he should have sat down gravely to write an account of what he had never seen. In a note on this book Kühn says, "*humanos uteros non incidit, sed simiarum aliorumque animalium.*"

Aretæus is considered by Dr Francis Adams, the learned editor of a collection of his works for the Sydenham Society, to have been a contemporary of Galen. He infers this from the connexion between their literary and professional views, and that the only way of accounting for the remarkable fact that neither mentions the writings of the other is that they were contemporaries, and were prevented "by rivalry or the established usage of living authors" from referring to each other's work. Of *Aretæus* nothing is known except that he is called the Cappadocian, from which we may suppose that he was a native of that region of Asia Minor. He gives us a fair account of the ligaments of the uterus; and, speaking of prolapsus, he says:¹—

"The membranes which are inserted into the flanks, being the nervous (fibrous) supporters of the uterus, are relaxed; those of the fundus, which are inserted into the loins, are narrow [evidently, the round ligaments]; but those at its neck, on each side of the flanks, are particularly nervous (fibrous) and broad, like the sails of a ship."

The mobility of the uterus must also have struck him: for he says in speaking of "hysterical suffocation"—

"In the middle of the flanks of women lies the womb, a female viscus, closely resembling an animal; for it is moved of itself hither and thither in the flanks, also upwards in a direct line to below the cartilage of the thorax, and also obliquely to the right or to the left, either to the liver or spleen; it likewise is subject to prolapse downwards, and, in a word, it is altogether erratic."²

The following reference to what we now speak of as the decidua is of interest:—

"It would appear that of the double membrane of the womb, the internal lining coat is sometimes torn from the contiguous one, for there are two transverse plates of the coat; this, then, is thrown off with a flux [menstruation?] and in abortion and laborious parturition, when it adheres to the placenta."³

¹ The extant works of *Aretæus* the Cappadocian, edited and translated by Francis Adams, LL.D., for the Sydenham Society, London, 1856, p. 361.

² *Ibid.*, p. 285.

³ *Ibid.*, p. 361.

Moschion.—The next contribution of Anatomy to Obstetrics is a book on "Diseases of Women," which has given rise to an extremely interesting critical inquiry as to its origin. Both a Greek and Latin version have come down to us, of which the former alone is in the College of Physicians' Library,¹ with a modern Latin translation by F. O. Dewez, published in Vienna in 1793. The book is in the form of a catechism, the first ten pages consisting of short questions:—"What is an obstetrician? By how many names is the uterus called? Where does the uterus lie? Of what nature is the uterus? How many coats has the uterus? Into what parts does the uterus fall? Where lies the os uteri? How far is it distant and backward? Of what nature is the os uteri? How large is it when closed? Where are the ovaries placed? Concerning the menstrual cleansing, why is it so called?" etc.

Putting aside the first question, answered in the first section of Soranus which we have not translated, those that follow take up the topics treated in his anatomical chapter and in the same order, with the exception that the vagina and external genitals are passed over. The questions that follow are based on the topics of the next section of Soranus which deals with menstruation; and the topics throughout are on the whole the same as his and in similar order. The form of the book is an instructive example of how systematic and thorough the teaching at that time must have been. It is a catechism with 152 questions and concise answers such as might easily be committed to memory; and it has this further interest, that it contains what was thought to be the earliest drawing of the human uterus.² In our illustrations we have reproduced this drawing.³

From the foregoing it will be evident that this work of

¹ *Μοσχίωνος περί τῶν γυναικείων παθῶν*, Moschionis de mulierum passionibus liber. F. O. Dewez, Viennæ. Apud Rud. Gräffer et Soc., 1793.

² I here mention the generally received view, but when we come to speak of Vesalius we shall find evidence that this drawing is a modern interpolation. The letters in the diagram are in Latin, those in the text in Greek, which shows, I think, that the cut is not of the same date as the text. As far as the mere lettering goes, we might consider the cut to be the older, for Dewez says that Moschion's original work was written in Latin. "Moschion," he writes, "as is evident from the preface to my MS., wrote this book for the sake of Latin matrons and obstetricians as being ignorant of the Greek tongue; therefore he wrote in Latin, not in Greek. It is not unlikely that time has destroyed the Latin work, and only the Greek version written in very late Greek has come down to us."

The terms in Moschion's text are the same as those of Soranus, except that the neck and isthmus together make the *χόριον* not *καυλός*, *πλεύρα* becomes *πλάγια*, and *πυθμήν* becomes *βάθος*. I think also that Moschion transposes the last two: for Soranus everywhere uses *βάσις* for the parts between the Fallopian tubes corresponding to the base on which the cucurbita or cupping-glass stands, while Moschion applies it to the "cavity," to which the term is clearly inapplicable. This may also be the reason why the word *πυθμήν* has dropped out (meaning, as it does, "the belly of a flask") and is replaced by *βάθος*—"the deepest place."

³ See Plate in September number of this Journal.

Moschion's is based on the teaching of Soranus, though when Moschion lived, and what the exact relation of the two books to each other is, lies wrapped in obscurity. Moschion admits in his preface that his book is not an original, but a translation from a Greek text for the use of "Latin matrons and obstetricians¹ unskilled in the Greek tongue." This original Latin Moschion is lost. The Greek version, which we have in the College of Physicians' Library, is considered by Weber (quoted by Ermerins) to have been produced in the sixth century at Constantinople; and the extant Latin version is, according to the same authority, a still more recent reproduction of this Greek one.² Further, it is held by Weber and Ermerins that even the original Moschion is not based directly on Soranus, but on a work on Diseases of Women written in the fourth century by Cælius Aurelianus, who in his turn drew from Soranus. If this view be correct, we must place Moschion somewhere during the fourth century, or between it and the sixth.³ These various editions of Moschion show that the book was widely used, and hence that the valuable work of Soranus in Gynæcology and Obstetrics was during these centuries not altogether lost. We only hope that the students of obstetrics of those days read Moschion not Galen.

It is interesting to follow the history of this book through its various stages in the light of these different editions; and we would suggest that the first Latin version, for the use of Latin-speaking matrons and midwives, was produced before the fall of the Western Empire in the fifth century; its Greek sister just fits in with the development of the Eastern or Greek-speaking Empire at Constantinople in the sixth century; and the version in barbarous Latin points to a later period, when learning was beginning to make way again in Western Europe.

During the following centuries, Anatomy suffered the fate of all science in the lethargic sleep of the Dark Ages. It fared even worse than other sciences, because Islamism distinctly forbade both dissection and the representation of parts of the human body.

It was not till the beginning of the fourteenth century that it roused itself again, and that in Italy where the world's life was intensest. The intellectual energy of Italy was at that time concentrated in the University of Bologna. Of the Bolognese School of Medicine at this time, Sir William Turner in his learned History of Anatomy⁴ writes—

"The University of *Bologna*, which, as a school of literature and

¹ "Obstetrician" is the Latin *obstetrix*, showing that the art was at this time practised by women.

² "My (Weber's) own opinion is that the Latin *foetus* was a product of the *Schola Salernitana*, to which we owe many translations of that kind."

³ Dewez informs us that Gessnerus is wrong in making Moschion live in Nero's time, for the son of that Julia Agrippina whom Moschion says he cured of sterility had the cognomen of Diogenes which Nero had not.

⁴ *Encyclopædia Britannica*, ninth ed., vol. i. p. 805.

law, was already celebrated in the twelfth century, became in the course of the following one not less distinguished for its medical teachers. Though the misgovernment of the municipal rulers of Bologna had disgusted both teachers and students, and given rise to the foundation of similar institutions in Padua and Naples, and though the School of Salerno, in the territory of the latter, was still in high repute, it appears, from the testimony of Sarte, that Medicine was in the highest esteem in Bologna, and that it was in such perfection as to require a division of its professors into physicians, surgeons, physicians for wounds, barber-surgeons, oculists, and even some others. Notwithstanding these indications of refinement, however, anatomy was manifestly cultivated rather as an appendage of surgery than a branch of medical science. . . . In this state matters appear to have proceeded with the Medical School of Bologna till the commencement of the fourteenth century, when the circumstance of possessing a teacher of originality enabled this University to be the agent of as great an improvement in medical science as she had already effected in jurisprudence. This era, indeed, is distinguished by the appearance of Mondino, under whose zealous cultivation the science first began to rise from the ashes in which it had been buried. This Father of Modern Anatomy, who taught in Bologna about the year 1315, quickly drew the curiosity of the medical profession by well-ordered demonstrations of the different parts of the human body. In 1315, he dissected and demonstrated the parts of the human body in two female subjects; and in the course of the following year he accomplished the same task on the person of a single female."

Though Mondino dissected three female bodies, he evidently did not examine the uterus, for in his *Text-book of Anatomy*, issued in 1316, he describes the uterus as containing seven cavities. This volume, as the first modern work based on dissection, gained such a position "that here and there in Italy it was decreed by law that anatomy should not be taught from any other book" (Haller). Mondino's text-book, with its defective and altogether erroneous description of female pelvic anatomy, was thus for the next two centuries the standard work in Italy. Soranus and Moschion lay buried and forgotten. It is for this reason that, although the revival of General Anatomy begins with Mondino, the revival of Obstetric Anatomy (which marks the commencement of our Third Period) does not date from him.

Towards the end of the fourteenth century a great impulse to the study of anatomy came from the students of Art. To Giotto's failures to represent hands and feet and the position of the limbs in different postures, we are more indebted for the revival of interest in anatomy than appears on the surface. The first anatomical drawings (for there are no illustrations in the works of Mondino), if not the first efforts to get at what lay below the

skin, were by Leonardo da Vinci (1452-1518)—great in anatomy as in art. Not only have we his own anatomical drawings, but we read that he illustrated the anatomist Mark Antonio de la Torre's book for him.¹ Of Michael Angelo's work, Haller says,²—"Exact anatomical skill is seen in his drawings; nevertheless he represented muscles more stiffly than is right. Twenty-two anatomical plates of his are mentioned, which he drew himself." Choulant³ gives a plate of one of his drawings, in which, although the skin is not removed, the muscles come out very strongly; alongside of the figure is a scale giving the proportions of the different parts of the body. Raphael also left behind him several anatomical studies.

We thus find an intimate relationship established between anatomy and art, they rendering one another mutual assistance. Anatomy aids art by giving it what is below the skin—the significant in the anatomical substratum of a given posture or action. Art aids anatomy by giving it, according to Choulant, three forms of illustration: (*a*), the diagram; (*b*), the picture of an organ as an individual; (*c*), the representation of the type—the result of the study of many individuals, so as to get at the typical or normal, and eliminate the accidental or abnormal. This last is necessarily the result of many drawings of individual specimens, and represents what is common to all. This distinction made by Choulant is suggestive; for if we look at these three modes of representation comparatively we find that each has had its own place in history, and has now its own work to do. The first, or diagram, was earliest in history, for men could sketch in the general features of an organ before they knew it intimately (by "intimately" I mean in detail and exactly): its work nowadays is chiefly as an aid to expression in teaching—by a rough diagram one can often show what one means more quickly and more clearly than in words. The second, or drawing of the individual, came next—when a specimen of a given organ was first carefully studied and described: its work is in research, the gaining of new knowledge. The third, or drawing of the type, came last, when enough of specimens had been studied individually to allow of generalization: its work is in handing on what has been accumulated, *i.e.*, in teaching—in teaching only; it is of no use in research. The Diagram, the Picture of an Individual Organ, the Drawing of the Type—each does its own work as an aid to expression, research, teaching.

After this digression on these artist-anatomists and the service rendered by art to the study of anatomy, we return to the pure anatomists; and among them the name of Berengario da Carpi stands out, and with him we make our Third Period begin.

¹ Choulant's *Geschichte und Bibliographie der anatomischen Abbildung, etc.*, Leipzig, 1852, p. 6.

² *Op. cit.*, p. 164.

³ *Op. cit.*, p. 11.

THIRD PERIOD.

This period commences with the work of Berengario da Carpi at the beginning of the sixteenth century, and it embraces also that of Vesalius, of Eustachi, and of Fallopio,—all of whom belong to the same century.

As we have said, we make this period begin with *Berengario da Carpi*, “primus humanæ anatomie instaurator,” as Haller calls him.¹ Rightly “*instaurator*” (re-storer), for he only brings obstetrical anatomy back to where Soranus left it. Son of a surgeon, he studied anatomy from a boy. He took his degree at Bologna, and, after teaching surgery for some time at Pavia, returned to his university town to fill the chair of surgery. The University of Bologna still retained its position as the first in Italy. As in Edinburgh now, the University was the pride of the town, which even adopted on its coins the University motto, “Bononia docet.” As a school of painting, too, Bologna had become famous, especially through Francesco Francia, who did not die till 1517; so that, from the friendly relationship we have described between art and anatomy, we can well believe that Berengario, the professor of surgery, must often have met the distinguished artist and Master of the Mint. After leaving Bologna in 1527, Berengario lived for some time in Rome, where he became famous for treating syphilis by mercurial inunction, and made a large fortune, which he left to the Duke of Ferrari.²

Berengario did splendid work in Anatomy. He boasts of dissecting at least a hundred bodies. He was even accused of cutting them up alive, but his “*Anatomia vivorum*” refers to what a surgeon might see in the course of an operation. His first work was to publish (1521) a *Commentary on the Authorised Text-Book of Mondino*.³ He gave the results of his own dissections in a separate treatise, the *Isagoge breves, etc.*,⁴ which was published in the follow-

¹ *Op. cit.*, tom. i. p. 167.

² We have the following quaint reference to him in Astruc:—“James Carpenis, as he was the only one who knew this secret medicine, viz., using unctions and quicksilver in curing the venereal disease, was rendered so rich by that alone, that he died attested of (left in his will) forty thousand crowns in silver, besides plate, all which he left to the Duke of Ferrari. For all the water, adds Fallopius, runs to the sea.”—*A Treatise of Venereal Disease, etc.*, by John Astruc. London, 1756. Book v. p. 155.

³ “*Commentaria cum amplissimis additionibus super Anatomiam Mundini una cum textu ejusdem in pristinum et verum nitorem redacto. Impressum Bononiæ per Hieronymum de Benedictis; pridie Nonas Martii. MDXXI.*”

⁴ The College of Physicians' Library has not the 1522 edition, but this one of 1535, published at Venice (entered in the catalogue under the name *Berengarius Carpus*, as if it were the work of a different man from the author of the *Commentaria*):—“*Anatomia Carpi, Isagoge breves per lucide ac uberime, in Anatomiam humani corporis, a, cōmuni Medicorum Academia, usitatam, a, Carpo in Almo Bononiensi Gymnasio Ordinariam Chirurgiæ publicæ Docente, ad suorum Scholasticorum preces in lucē date. Venetiis, Anno D. MCCCCXXV.*” The title-page is adorned with a vigorous woodcut of Berengario at work

ing year. Both of these works are noteworthy from two points of view:—(1.) They are the first text-books of anatomy *with illustrations*—the first efforts after an exact representation according to nature. The quaint attitudes and rugged execution are against them. The attitudes, representing the subjects as if alive, are an introduction of art into anatomy which the purely scientific spirit resents. The ruggedness is due to defective means of reproduction, and an interesting paper might be written on the influence of methods of reproduction on anatomical drawing—the Wood, Copper, and Stone Ages. Still, the illustrations of Berengario are truly artistic productions. Choulant¹ says of him:—“Himself engaged in art, and associated with artists and the friends of art, he has kept the artistic standpoint in his works.” (2.) These two books are further noteworthy as *contributions to Obstetrics*. The only viscus which he considers worthy of reproduction is the uterus; and in making and publishing his section of it, he forever uprooted and cast out the erroneous teaching of Mondino. The plate represents a female figure standing with a veil behind her, which she holds over her head with the left hand. The abdomen is laid open; the uterus and cervix divided coronally. There is grim humour in representing the subject as holding in her right hand, for purposes of demonstration, the front half of the divided uterus and cervix. The description is as follows:—

“You have in the belly of this figure the uterus laid open, in which you will see certain black points indicating the heads of the veins, which are called cotyledons. You have, further, the uterus laid open outside the body, on which rests the index finger. And in the fundus of the uterus you will see a certain depression indicating a right and left half; but I have not found in the uterus any other division. The black points are the cotyledons, and you will see that the cervix does not possess these.”

This illustration with descriptive note appears in the *Commentaries*, and is repeated in the *Isagoge*. The *Isagoge* gives in addition a plate of the uterus (reproduced in our illustrations)² seen from the outside and laid open, with this note:—

“Because things repeated ten times are wont to please, you have here two uteri, of which the one is turned outside-in, where you will see how, through the whole cavity, there are many black points indicating round cotyledons, which are not present in the neck. In the other figure you will see the natural womb with its testicles and spermatic vessels, and the ligaments with which its horns are bound. You will see also the neck and the os through which menstrual blood and foetus pass and the semen enters.”

(To be continued.)

among his pupils. On the last page of the book it is described as—“*Impressum Venetis per Bernardinum de Vitalibus Venetum, MDXXXV.*”

¹ *Op. cit.*, p. 8.

² See Plate in September number of this Journal.

VII.—ADDRESS BY PROFESSOR MARIANO SEMMOLA, UNIVERSITY OF NAPLES, ON SCIENTIFIC MEDICINE AND BACTERIOLOGY IN REFERENCE TO THE EXPERIMENTAL METHOD. DELIVERED AT THE MEDICAL CONGRESS OF WASHINGTON, SEPTEMBER 1887.¹

Translated by JOHN BOYD, M.D., Slamannan.

“Nec ab antiquis sum, nec a novis ; uterosque, ubi veritatem colunt sequor.”—BAGLIRE.

“En science de même qu'en politique il faut se défendre également et des préjugés conservateurs et des préjugés novateurs. . . . La règle de nos pensées ne doit être ni le vieux ni le neuf, mais le vrai.”—BERNARD.

GENTLEMEN,—Being called by the Executive Commission to the high honour of delivering an address on medicine generally, I feel on the one hand the duty of expressing my gratitude for a distinction so superior to my modest deserts, and on the other I am conscious of requiring your indulgence, which I trust will come to my aid in the difficult arena in which I am engaged, animated more by the desire of presenting the salutation to you which the Italian Government confided to me, to applaud this festival of medical science, than confident of being able worthily to respond to the honourable invitation.

In the name of Italian Medicine I present my homage to you, illustrious colleagues of the United States, representatives of the medical progress of the New World, and I also fulfil the duty of thanking you for the exquisite courtesy with which you received me in this land, which comprehends all the greatness of the future of free peoples.

A humble son of Italy, but feverishly adoring those grand titles of nobility acquired by our Alma Mater so worthily in the history of thought and of science, my life dream was none other than to see her always pre-eminently honoured ; hence at your kind invitation, I considered I should best discharge my obligations to my country and to you by discoursing on the value of one of the most glorious discoveries with reference to the daily progress of medicine. I mean the experimental method which, born in Italy with Galileo, has ever been the sole magnet of scientific progress—without which the most daring and skilled of mariners would come to certain shipwreck.

On the banner of medicine, as ancient as human misery, there was always inscribed the motto, “Preserve health and cure diseases.” This flag ever was and ever must be that which should lead us to the effective scope of all our studies, and which should be for the physician—even the most passionately zealous devotee of science—a true amulet against the temptation to convert medical study into a mere scientific curiosity. It is easy to convince us that if there were no patients, there would never have been any

¹ From Nos. 9 and 10, *La Medicina Contemporanea di Napoli*.

doctors; and hence the platonisms in the progress of medicine seem ridiculous to society, and the old adage "*medice cura te ipsum*" combines very well the irony and the sarcasm that the world addresses to the doctor incapable of conquering his own maladies.

I can easily understand a physicist or a chemist who is not mechanist or industrial, or a botanist not agronomic; but a medical is incomprehensible who does not engage in the observation and treatment of diseases, inasmuch as their study is inexorably the one means, and the single scope of his true mission. For my part, as with all the eminent physicians, the only measure of true advancement of medicine is and only can be in the more or less number of patients that the practitioner can conscientiously claim to have rescued from the jaws of death. This may seem to some too prosaic a measure, but still it remains the hard truth, and this reality alone renders the evolution in medicine one of the most important functions of civilisation; for whenever men are united in a common object our science corresponds to a collective social interest. The poet termed *mens sana in corpore sano* as the apex of human felicity. Whatever the condition of man, his greatest interest is ever the conservation of health and life, because sickness and death represent disturbance, anguish, desolation of the domestic hearth. The solidarity which unites the members of a single family among themselves extends to society as a whole, and at times the death of one man may become a public calamity, and compromise or change the destiny of an entire nation. Exactly from this it is that in no branch of human knowledge more than in medicine does the ardent desire to solve its own problems become more feverishly vivid. Hence it occurs that the hope of attaining to the whole truth, constantly disappointed and constantly reviving, has sustained through so many ages, and still sustains, and ever shall, so many generations in their passionate ardour to study and discover the mysteries of the phenomena of healthy or morbid vitality. To commence from the grand Greek epoch of Phydias and Plato, in which the immortal pages of Hippocrates constituted their first scientific expression, down to Koch and Pasteur, or to say from the beginning of the time when man, led only by sentiment, believed himself in possession of the cognition of the absolute, down to the modern epoch wherein reason and experience would asphyxiate completely this aspiration, unless during the long mediæval silence, medicine developed by observation alone, and made precious acquisition, even though often agitated in the most opposite directions, but dwelling always in the domain of vigilant investigation,—never renegade from its past, wherein even the most vehement antagonists of this found indispensable backing, and an inseparable guide for new directions of labour. Thus passed above twenty centuries, during which, with the force of instinct purified up to sentiment, and afterwards with reason abused in the scholastic fashion, the intimate study of

nature remained a dead letter as to medical progress, unless from here and there those chosen geniuses, who after all constitute the true tradition of medicine, exerted themselves in all ages to reconduct it to the cognition of human nature, observingly and experimentally acquired.

These luminaries of naturalistic genius, however, possessed no solid base, and this they alone could find in the secure entrance which the seventeenth century made into the dominion of science with its marvellous conquests. Then it was the incessant progress of the physico-chemical sciences permitted, nay, compelled biology to take its place among the experimental branches of knowledge, hoping thus to save medicine from ulterior shipwrecks. Its guiding star was experiment—that is, the study of the objective reality of natural phenomena, which served to indicate to men that the works of the external world are not formulated on sentiment or reason, or, according to the happy expression of Berthelot, that the world is not realized by divination, but by observing it. In fact, aided by this guide, man has wrought prodigies in all branches of knowledge, reaching to a superiority infinitely higher than that attained in the best Greek or Alexandrian epochs.

It is easily imagined what should be the ardour of doctors before the prospect, the elevated aim of being able to dominate the most terrible enemies of mankind—the diseases. But the revelation of truth, the natural fruit of science, like all other fruits, requires the cultivation of the soil, insemination, budding, and flowering to attain the harvest. Woe to the farmer who flings even the best seed on sand in the delusion that the excellence of this would alone secure a good crop. He would finally lose it; and the medico who should imitate him would, even under cover of the experimental method, be in a position equally deplorable with his predecessors who, armed with the finest logic, invariably landed in error. I comprehend that the unceasing curiosity of the scientist, especially if medical, is impatient, and that curiosity, as said for centuries, is the mother of science, because Nature unveils her mysteries only to the curious inquirer. I comprehend that the passion for novelty is most usual in turbulent times, and that strong commotions waken up the eager activity of revolutionary spirits. I comprehend, in fine, that when evolution languishes it is by revolution that progress is made; and it is then permissible to tolerate the excesses of that deep agitation, whether they come in the social or scientific order. But the moment must ever arrive when the investigating spirit halts to recollect that Nature does not proceed by leaps and bounds; and the true philosopher, while remembering that revolutions are a historical necessity of mankind, has the duty of confining within the limits of the laws of evolution. This harmony between these two forces in scientific progress is measured by the benefits it confers on society; and be this said of the physical as well as the moral, inasmuch as the effective balance between evil and good in

life is indubitably the sole measure of the effective progress of humanity.

When this balance leaves voids and disillusion, and especially if the path trodden to attain it is undoubtingly proclaimed as the only one and the most perfect, we must admit that some tooth of the wheel is broken, and the result is worse than even if the right road had been missed. I beg you to follow me, gentlemen. Medicine presumes to-day more than ever to regenerate itself, and has the right, if not the duty, as done by the other sciences preceding it in this noble aspiration, although less complex and more easily studied. Medicine has now arrived at that period of evolution simultaneously with all other sciences invaded by that fever—the necessity of advancing into the penetralia of natural phenomena, which for this are the facts of sound and morbid vitality. This, guided by the experimental method, would seek almost to attain that mathematical precision which increasingly prevails in the other sciences, and by this proceeding endeavour ultimately to compose its definitive codex—the breviary of its ministers to cure diseases. What a novel and brilliant golden age for mankind! Then it might be repeated that the final aim of its studies would not only be *ars medendi*, but *ars semper sanandi*. This point does not require the smallest discussion, as therapeutics were at all times the object of the greatest physicians,—the clinique itself without therapia would be a meditation on death. Whoever, dazzled by the wonderful advances of science, should be tempted to overlook this fundamental truth, would feel the ground wanting under his feet, and sink in the darkness of void. This is the lesson of history.

Now, when we reflect that in the midst of chaos, of the errors and aberrations that for so many centuries were the ancillary predilection of medicine, tradition has transmitted to us curative treasures which still claim the respect of the most sceptical, and even now the greatest and most lucid demonstration of the value of therapeutics—mercury, cinchona, iodine, etc.; while, on the other hand, all the stupendous scientific advances have not yet been able to furnish a single item truly equivalent to these poor foundlings of empiricism in the treatment of gravest maladies, a serious doubt is apt to enter the mind of the learned and honest physician; and rather than assist with light heart at the seducing magic lantern of new remedies, which based on a new method of experiment, while to-day glorified on the altars, to be buried in the dust to-morrow, he would prefer to halt and meditate on those diurnal phantasmagoria which certainly cannot constitute the true balance of scientific progress.

The experimental method aims at searching out determinism, or the proximate cause of the phenomena of nature. The principle on which this method is based is the certainty that *determinism* exists; its plan of research is the philosophic doubt, and experience is its

sole judge. It admits no dogmatic personal authority, and absolutely rejects systems and hypothetic doctrines, and in no way from pride or caprice, inasmuch as the true savant humbly denies individual authority, even of himself, and submits all to experiment and natural law. Goethe said that the only intermediary that should subsist between the savant and surrounding phenomena is experience. There first comes the rigorous observation of the facts which differs from the fact itself, and which leads to the formulating the laws under which the facts present themselves. Now is felt the need of seeking out the occasions of the fact, the most arduous portion of the inquiry. This leads to ascertaining the conditions of existence under which the facts or phenomena are manifested, and now only can the inquirer formulate the laws that regulate the appearance and disappearance of the phenomenon. It is evident that the last investigation is the most complicated and difficult, as there remains always the need of theory preparatory to the unveiling of the truth. These hypotheses, as Newton remarked, are a species of aurora of glimmering light which make the truth appear dimly, and which, however, gradually becomes illuminated by experience ascending to brilliant light.

The experimental method consists, then, of three elements—observation, supposition, and verification, all of these distinct but inseparable. The experimentalist who, after making a new and splendid observation, and having conceived a bold hypothesis to explain it, instead of impartially devoting himself to fulfil the experiment to assure himself of an unassailable truth, prefers to become enthusiastic about it without caring as to the verification of his theory, and turning it to the four winds, viewing this as the definitive truth, torturing Nature to justify his enthusiasm, becomes in reality a traitor to science, impelled by self-love and not by love of truth. In appearance the problem of scientific medicine is most simple—the determination of the conditions of vital phenomena in healthy or morbid conditions. Physiology well applied has enabled us to discover the secret mechanism of so many functions, and thus has cleared up the clinique.

To attain to this degree of certainty about half a century of study was required; while the honest, patient investigator continued in the pursuit of truth, the object of his inquiries never escaping him altogether; while humanity continued to live quietly on without disturbing itself as to how the stomach digested, or in what the hepatic functions might consist. After all, conditions of study to-day so favourable, how can we assert whether more remains to be found out on human physiology than we already know? It is sufficient to recognise that of the biological chemistry of the blood we know little or nothing; that our best developed notions on this subject are threatened with a total revolution after the recent researches of an illustrious Italian savant, Angelo Mosso.

It is necessary to remember that the imperfect conclusions yet

attained were not indifferent for mankind, while the errors of waiting are too late for the fatal consequences to which they may have conduced, as the sick man cannot and ought not to wait. I know not how it comes that the empirical medicine of former times is so much vilified, while the application of new remedies, based on a bad experimental method, is no less deplorable than the empiricism of the past. According to the traditional, medicine killed or cured the patient without knowing *why*; so-called scientific medicine does the same if misled by a false *why*. Both are blind—the one with the bare face of ignorance, the other blinded by the mask of science. What has physiology done? It imitates the physicist and the chemist. Pathology and therapia should do the same, since the healthy organization is not a passive field of action in which the disease and the remedy have to fight it out.

What are the objects of medical study? The functional disturbances or the symptoms of disease. The physico-chemical conditions of these are the internal causes. This is the simplest enunciation of the pathological problem to arrive, logically, at the third part of the solution—How can we modify, artificially, these morbid conditions, or rather cause the morbid to disappear, replaced by the normal functions? This series of problems is sufficient to dishearten not one, but many generations of explorers. But this honest confession seems to me the best preface to the scientific medicine of the future. If it is to be constituted, this is the logical progression. Beyond this, all is ignorance or empiricism; there is no half science or conjectural knowledge. If the scientist, especially the physician, is desirous of being really and not apparently such, he must obey and not command Nature.

How was it with Franklin, Stephenson, Daguerre, Edison, and so many other benefactors of mankind? These were worthy, faithful ministers of science, who were reticent, and made no pompous promises till they had unveiled the natural secrets they set themselves to study. If a single link on the chain of their researches had been imagined, without being forged and hammered, the chain itself would certainly have given way on trial, and the miracle prematurely announced would have become *nil*.

This principle has been too frequently forgotten in the progress of pathology and therapia, and hence the true reason for the paralysis of useful results in such a mass of investigation in the medical sciences. But, as always repeated by De Candolle, Chevreul, Bernard, and others, the digested and not the crude facts are they which nourish thought. The vaunt of many modern savants, that they seek new facts alone, is in reality only a reaction of the natural philosophy which reigned at the commencement of this century, especially in Germany; which gave an exaggerated preponderance to the spirit in the interpretation of the phenomena of the external world.

But if the excesses of ratiocination opened the way to the modern

appearance of scientists and experimentalists, purely empirical and sceptical, the opposite extreme, the complete absence of reasoning, leads to the loss of the great benefits of the experimental methods.

(To be continued.)

Part Second.

REVIEWS.

Vaccination Vindicated. By JOHN C. M'VAIL, M.D., D.P.H. Camb., Physician to the Kilmarnock Infirmary, etc., etc. London, Paris, New York, and Melbourne: Cassel & Co.: 1887.

To those older men, whether professional or lay, who have seen and still recollect the percentage of people, deeply scarred and pitted and with damaged eyes, moving about in every community even forty or fifty years ago, and who remember the fatal character of small-pox as then seen, it must seem exceedingly unreasonable to doubt the protective efficacy of properly carried out vaccination. The present age, however, is "*nullius addictus jurare in verba magistri*," and experience is ignored or altogether forgotten and supplanted by fad and sentimental considerations for "liberty of the subject."

It is nevertheless matter for regret that hitherto all efforts have failed to obtain an inoculable, pure artificial cultivation protective to man. This would, when got, at once remove the most serious objections to vaccination as now practised. The contagium of vaccine may perhaps not be of a bacterial nature, may attach itself indifferently to any of the micrococcal forms which have been found in and cultivated from the vesicle, and thus the desired pure cultivation may never be obtained: but the protective methods at present in use should not therefore be thrown aside at the bidding of writers who base their demands on erroneous statements, beliefs, and statistics, the latter misinterpreted or wilfully manipulated to suit their own purposes, and who do not cease to rehearse the same errors although pointed out and exposed.

Dr M'Vail's volume, begun as a reply to the monograph of A. R. Wallace, LL.D., entitled, "*Forty-five Years of Registration Statistics, proving Vaccination to be both Useless and Dangerous*," has expanded into a work which examines critically almost all of the anti-vaccination literature extant. The trouble and time expended by the author, and the irksomeness of his task in compiling and collating his statistics, must have been incredibly great; but the resulting book must ever remain as a standard essay on the subject, and must be eminently satisfactory to all who believe that Jenner's discovery has done and is still capable of doing an incalculable amount of good.

It is not intended here, nor is it necessary to analyze the chapters of the book, of which there are eight. But attention may be invited to chaps. 6 and 7, dealing with the alleged evils of vaccination, and in which the bogus character of many of the reported cases is amply exposed. Chaps. 3 and 4 treat of the mitigation of small-pox by vaccination, and are, like all the others, replete with unassailable statistical information and argument. At page 42 Dr McVail gives statistics which seem to show that within the past fifty years the severity of the disease, in both vaccinated and unvaccinated, has tended to increase. Mr Marson's rate of mortality from 1835 to 1865 among the unvaccinated was $35\frac{1}{2}$ per cent., and Dr Gayton's more recent ones, 10,000 in number, giving a death-rate of 43·2 per cent. The increase of mortality among the vaccinated is very slight—Mr Marson's rate being 8·7, while the more modern rate ranges from 8·8 to 11·5 per cent. At page 88 a condensed table from Dr Gayton's paper, "The Value of Vaccination," is given, and it well illustrates the differing results from good and imperfect vaccination. While the deaths at all ages of those with good vaccinated marks were 3 per cent., they were in those with imperfect vaccinated marks 9 per cent. In those vaccinated but with no evidence in the shape of vaccinal cicatrix the deaths amounted to 27 per cent., and in the unvaccinated 43 per cent. Comment on those figures is needless.

In conclusion, we would further say that the volume is a model of patient industry and investigation, a store-house of easily reached and well arranged statistical facts, and a severe critic of the fallacies which do duty as facts in most anti-vaccination literature. Every page shows the ability of the writer, and the book has no equal on its own subject-matter at the present time in our language. We commend it heartily to every one, medical or lay, who takes an interest in vaccination and vaccination laws.

Comments on the Report of the Committee on M. Pasteur's Treatment of Rabies and Hydrophobia. By Surgeon-General C. A. GORDON, M.D., C.B., etc., etc. London: Baillière, Tindall, & Cox: 1888.

A VERY considerable amount of strife and contention has arisen round the question as to the scientific value and practical worth of Pasteur's system of inoculation in persons bitten by rabid animals. In the course of time the wrangle does not seem much nearer to abatement or definite settlement.

The bitterest opponents of Pastorian methods and "discovery" are Pasteur's own countrymen, and at the head of the "Anti-pastorians" are to be found Lutaud, whose volume, *M. Pasteur et la Rage*, was reviewed in this Journal of August 1887, who has been joined by Peter, Percheron, and Colin. Now those names are the names of very eminent men, and they base their opposition

partly on *a priori* grounds, partly on the insufficiency of the comparative statistics of the mortality of men bitten by rabid dogs before and after Pasteur's discovery, the cases of death being known, but not the numbers of those bitten and who had nevertheless remained well. After Pasteur's discovery almost every case of bite came to public knowledge and treatment, and many were doubtless treated who had been bitten by supposed, not really rabid animals. Partly also opposition is founded upon examples which seem to show the inefficiency, and even danger, of the inoculations. And lastly, partly on the contradictory results obtained by other experimenters. Abreu, Von Frisch, De Renzi, and Amoroso have, after due testing and control, come to the conclusion that it is inadvisable and hazardous to adopt Pasteur's prophylactic measures in men.

On the other hand, the results obtained by Gamalaia in the Bacteriological Institute of Odessa, by Cantani and Di Vestea, are altogether in favour of Pasteur. Although this is the case, the preponderance of evidence seems to be, that Pasteur's treatment affords no *certain* protection from an outbreak of lyssa, and that his statistics are erroneous. Von Frisch considers that although Pasteur may be right in his views that he has discovered a means by which a vaccine may be prepared operative against *experimental* rabies, yet the method of his protective inoculations is not so thoroughly flawless as to justify its application to man; his "*traitement intensive*," indeed, probably provokes a deadly form of hydrophobia.

Dr Gordon's book is a calm, judicial, and modest contribution to the question, and is a plain commentary upon the Report of the London Commission appointed to inquire into Pasteur's system of treatment; it stands in no need of the apologetic sentences in its introductory remarks as an excuse for its publication. The chief paragraphs of that Report are taken up, and the author comments upon them with the aid of his older and more recent experience, and his logically reasoned out conclusions are unobtrusively given: for these the book itself must be consulted; but he tersely sums them up by hinting that the policeman and the muzzle, if properly authorized and applied, would be much safer, and therefore much better, antagonists of rabies than the scientist.

The volume contains an interesting appendix about dog-life in Scandinavia; and pp. 13, 14 give the author's personal experience of a dog-bite of which he was the subject, and which inclines him to agree with the late Prof. Dick of Edinburgh, who considered hydrophobia to be a neurosis occasioned by fright.

The book is an important contribution to the literature of the question, and an invaluable aid to the right understanding of the work of Pastorian methods and treatment, and deserves to be widely read by those desiring to see what can be said for and against his proceedings.

The Applied Anatomy of the Nervous System: Being a Study of this Portion of the Human Body from a Standpoint of its General Interest and Practical Utility in Diagnosis, designed for Use as a Text-book and a Work of Reference. By AMBROSE L. RANNEY, A.M., M.D., Professor of the Anatomy and Physiology of the Nervous System in the New York Post-Graduate Medical School and Hospital, etc., etc. Second Edition. London: H. K. Lewis: 1888.

It is in the diagnosis of disease of the nervous system, more than of any other group of morbid conditions, that a precise knowledge of the anatomy and physiology of the structures involved is essential.

Thanks to recently devised methods of research, and to the labours of a large body of able investigators, our knowledge of the anatomy of the nervous system is being daily extended and corrected; and, as a necessary consequence, our knowledge of its physiology is likewise widening and becoming more precise. There can be no doubt that it is largely due to this advance of our purely scientific knowledge—although we must also fully recognise the influence of better clinical and pathological methods of investigation—that the diagnosis of many diseased conditions of the brain is now so wonderfully accurate as to enable us to operate with approximate certainty of success.

A work giving the most recent results of anatomical and physiological research, and at the same time showing the bearing of these upon the explanation of various pathological conditions, thus becomes a desideratum with every practitioner; and such a want is well supplied by this second edition of Dr Ranney's admirable *Applied Anatomy and Physiology of the Nervous System*. The changes in the second edition are so radical and extensive that it must almost be regarded as a new work.

While in most of the recent works upon the nervous system the tendency has been somewhat to magnify the pathological and clinical aspects of the subject at the expense of the anatomical and physiological, in Dr Ranney's treatise the reverse holds good; and the greater part of the work is devoted to the elucidation of the normal conditions, structural and functional, while the possible divergences from these are merely sketched in outline.

After a general introduction, the anatomy and physiology of the brain are discussed with great fulness. In Part II. the cranial nerves are dealt with, while in Parts III. and IV. the structure and functions of the spinal cord and spinal nerves are carefully described. A full and accurate index accompanies the book—a fact which must be considered a strong recommendation to such a work of reference.

The field covered is necessarily very wide, and ever extending; and the author is to be congratulated on having so well succeeded in bringing his information abreast of recent research. We are by no means surprised to find many important investigations un-

noticed. We observe that the author does not mention Professor Hamilton's interesting observations on the corpus callosum, which at least clearly show that all the callosal fibres are not commissural to corresponding parts of the two hemispheres. An intentional or accidental omission, however, of more practical importance is Hare's very admirable method of localizing the various cerebral sulci. The more complicated and less satisfactory method of Féré is described.

Similar omissions might be noticed, but in a work of such size these are almost inevitable.

To the medical man we can recommend the book as a most useful work of reference.

A Handbook of the Diseases of the Eye. By HENRY R. SWANZY, A.M., M.B., F.R.C.S.I. Second Edition. London: H. K. Lewis.

A GOOD many important additions have been made by Mr Swanzy in the second edition of his excellent handbook. The additions appear to be most numerous in the chapters on the Diseases of the Retina and Optic Nerve, and on Amblyopia. Many points in connexion with these affections have received more general attention of late years, and we are glad to find such full reference to them in a text-book which has gained such a well-deserved popularity. No better book could be put in the hands of students than this one by Mr Swanzy. It is concise and practical, and is written from the point of view of a man not only of large experience of ophthalmic surgery, but of excellent judgment as well. The first edition has been so rapidly exhausted, that a more complete review is hardly called for. Suffice it to say, that while retaining all the characteristics on account of which we felt confident in recommending it to the readers of the *Edinburgh Medical Journal*, enough new matter has been added to the book to bring it thoroughly up to date.

Ueber Gemüthsbewegungen. Eine Psycho-Physiologische Studie. Von Dr C. LANGE, Kopenhagen. Autorisirte uebersetzung von Dr H. KURELLA. Leipzig, 1887.

As Danish is not much cultivated in this country, those who wish to study Dr Lange's treatise on the expression of the emotions will be glad to avail themselves of Dr Kurella's translation. Having compared it with the original, we are able to say that it is both clear and faithful. Dr Lange gives a striking description of the sensible effects of the passions upon the bodily frame. Most of these he traces to the action of the sympathetic system in constricting and dilating the vessels of different parts of the body. While giving due tribute to the extraordinary powers of observation shown by Darwin in his work *On the Expression of the*

Emotions, Dr Lange thinks that he was too little solicitous to look out for the causes of the phenomena, instead of treating them simply as associated movements.

Dr Lange's work shows both learning and close observation. Since its publication we have had two other works on the same subject in Warner's *Physical Expression* and Mantegazza's *La Physionomie et l'Expression des Sentiments*, nevertheless the pamphlet of the Danish professor is worthy of the study of all interested in a subject to which as medical practitioners we cannot escape from paying attention.

The Goulstonian Lectures: On Insanity in Relation to Cardiac and Aortic Disease and Phthisis. By WM. JULIUS MICKLE, M.D., F.R.C.P. Lond. London: H. K. Lewis.

IN ninety-three pages, somewhat closely printed, Dr Mickle has given us his observations upon the modification which diseases of the heart and aorta and phthisis have upon the course and character of insanity. The influence of diseases of the heart on the mental condition has long been noted by physicians. As a general rule, mitral disease predisposes to melancholy, aortic disease to exaltation of mind, and phthisis to hopefulness. Dr Mickle has followed out these general indications, with precise observations pursued during many years. His description of the cerebral circulation is most interesting. Altogether, the lectures will be relished both by students of insanity and general medicine.

Landmarks—Medical and Surgical. By LUTHER HOLDEN, Ex-President of the Royal College of Surgeons of England; Consulting Surgeon to St Bartholomew's and the Foundling Hospitals. Fourth Edition. London: J. & A. Churchill: 1888.

THIS work has been for some years out of print, and its reappearance is now welcomed. The chief points in connexion with surface anatomy are nicely grouped and clearly stated, and the author exercises a wise discretion in not making the work too elaborate, and in not entering too far into minutiae which belong more properly to manuals descriptive of dissections.

These *Landmarks* form an elegant little volume, easily within the reach of all students. We heartily recommend it to them, and it is not enough that they should read it. Indeed, the author expressly states that it is intended only for those who "are desirous of acquiring the habit of making the eye and the hand work together, and to educate the 'touch' upon the normal living body." This, however, is, or ought to be, one of the most essential parts of the education and training of students.

The author adheres to his former resolution not to introduce diagrams, and, keeping in view the object of the work, no one who is acquainted with the teaching of students will question the

wisdom of his decision. The student who uses this book will be forced to verify the facts stated in it by practical examination of the human body, and the knowledge and training thus gained will be to him of the highest value; for it will be a knowledge not of diagrams or descriptions, but "a knowledge of things themselves."

It is not our intention to enter into any carping criticism of details. To quote again the words of the author, "a considerable latitude must be allowed for natural variations in different persons;" and, with this qualification, the book is as nearly perfect as a work of its size and kind can be. In this, as in his other works, the author maintains a style which is peculiarly his own. It is fascinating, yet simple, and at times almost quaint. It has the additional and distinctive charm of revealing to us, to some extent, the individuality of the author—a feature very little achieved by writers of descriptive anatomy. It is an attractive individuality that is here revealed to us, and the reader can hardly fail to observe that dry facts of anatomy are here laid before him clothed with the thoughts of a kindly yet large-minded and philosophic spirit.

An Introduction to the Study of the British Pharmacopœia. By RAWDON MACNAMARA, Professor of Materia Medica, R.C.S.I., etc., etc. London: H. K. Lewis: 1888.

THIS work forms an excellent introduction to the study of the British Pharmacopœia. The descriptions of the various substances of the Pharmacopœia are, as a rule, accurate, and stated in such a manner as to interest the beginner, for whom it is specially intended. The author should remember, however, that the specific names of plants are generally printed without capitals.

We have much pleasure in commending this little treatise to the notice of students entering on a course of Materia Medica.

The Waters of Plombières (Vosges). By Dr BOTTENTUIT, Médecin consultant aux Eaux de Plombières, etc. London: J. & A. Churchill: 1888.

IN spite of a number of rather amusing errors in English spelling, which ought, we think, to have been corrected by Messrs Churchill's reader, Dr Bottentuit has produced a readable and instructive book. The usual plan of such works is followed, and the various indications of the waters in diseases of women, diseases of the intestines, of the nervous system, of the skin, gout, and rheumatism are discussed at not too great length. Dr Bottentuit gives it as his opinion that this "efficacy (*sic*) is not entirely due to the presence of the arsenic they contain. Their high temperature has doubtless a great share in the good results they produce." We may add that the book is illustrated by a number of very excellent cuts.

Part Third.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION LXVII.—MEETING X.

Wednesday, 4th July 1888.—Dr CLOUSTON, *Vice-President, in the Chair.*

I. EXHIBITION OF PATIENT.

Dr Allan Jamieson exhibited a patient exemplifying the condition described by *Dr Walter G. Smith* of Dublin (*British Medical Journal*, 1st May 1880) as **NODOSE HAIRS**. He was a well-grown boy aged four years. The scalp was fairly well covered with dark hair, which, however, in no part exceeded half an inch in length, in most parts was still shorter. It felt to the hand passed over it harsh and wiry. On examining the hairs under the microscope, most of them showed more or less distinctly a regular alternation of swellings and contractions, exactly similar to those figured by *Dr Smith*. The nodes were pigmented; the contracted portions were devoid of colour. Scarcely any trace of imbrication was visible on the nodes, but could be plainly made out on the contractions. By staining the hair with nitrate of silver, and shaving after an interval of four days, it was found that each node took two days to grow, which also corresponded to the estimate of *Dr Smith*. From an examination of the hairs, which were extracted with the root and the root-sheath *in situ*, it was seen that the contraction and node formation did not occur within the follicle, but first appeared on the hair-shaft a short distance beyond its point of exit from the follicle. Possibly, therefore, the condition is due to a rhythmical imperfection in the cuticle of the hair. Where this is well pronounced the hair is narrowed, its fibrous structure being, as it were, forced out to form the node. At all events the change in form is a secondary one, and takes place when the hair becomes subjected to the desiccating influence of the air. Two other children are similarly affected,—one a boy aged $6\frac{1}{2}$, the other a girl, aged 2. In neither does it assume such well-marked proportions, as it only implicates the occipital region, the hair growing pretty well in front, though in the boy it is too freely shed. No history of any similar defect in an ancestor can be made out. The father is alive and well. The mother died at the age of 30 of cancer of the uterus.

II. EXHIBITION OF APPARATUS.

1. *Dr A. Bruce* showed *Leiter's ENDOSCOPE*, and demonstrated its working in an artificial bladder.

2. *Mr F. M. Caird* showed *R. W. Parker's TRACHEOTOMY TUBE* with the greater portion of the upper wall of the inner canula

removed. This rendered the tube more easily removable than the ordinary form, and facilitated the cleansing of the outer canula.

3. *Dr Felkin* showed Stern's GEHEIM-CAMERA, which is an instantaneous photographic apparatus. It can be carried underneath the coat with the lens projecting through a button-hole. By pulling a string the photograph is immediately taken. Six photographs are taken upon one slide, and measure an inch and a half in diameter. They can subsequently be enlarged to six or eight inches. The cost of the apparatus is only thirty shillings. It is exceedingly easy to manipulate, and can be used either to catch the fleeting expressions of a patient, or to obtain an accurate photograph of any injury. The apparatus has only two drawbacks—the one is that it requires a strong light, as the process is so rapid; and, secondly, all the six photographs on the one plate must be taken with almost the same intensity of light, or else they develop unequally.

III. EXHIBITION OF SPECIMENS.

1. *Dr Byrom Bramwell* showed a sample of MILK-LIKE URINE which was not chylous, and had a very foetid odour.

2. *Mr A. G. Miller* showed a drawing of the result of an AMPUTATION OF THE PENIS FOR EPITHELIOMA. He had saved as much skin as he possibly could, cutting the corpora considerably further back, and had thus left a fair-sized and presentable organ.

IV. ORIGINAL COMMUNICATIONS.

1. *Dr P. M'Bride* read his paper on the METHODS OF REMOVING NASAL POLYPI, which appeared at page 111 of this Journal.

Mr Duncan thought *Dr M'Bride* had been a little severe on the forceps. He did not think the difference between the snare and the forceps was of much moment. If he gave the preference to either it would be to the forceps, because he could take away more polypi with it than with the snare. The time occupied was also greater with the snare. The amount of pain given with the one or with the other was really a question of delicacy of manipulation. He also found that he could remove those polypi which projected posteriorly with the forceps more easily than with the snare. It not unfrequently happened that it was impossible to illuminate the parts sufficiently to be able to put on the snare, but with the finger in the pharynx the forceps could be properly guided to the spot. Of the solitary polypi to which reference had been made he had met with three or four examples. They tended to occur in young people, projected to the back, were somewhat firmer than the ordinary mucous polypus, extremely pedunculated, and easily separated. They differed greatly from the fibrous polypus which grew from bone, and appeared to be analogous to the pedunculated fibrous polypus of the rectum.

Dr M^r Bride said he did not condemn the forceps, but the blind use of it which was so common, and which he did not think Mr Duncan would defend. As to the question of pain, he drew his conclusions from the statements of intelligent patients who declared the snare to be much less painful than the forceps. For impatient patients the forceps was certainly quicker, but he doubted if it were better for them, as usually no attempt was made to prevent the recurrence of the growths. He was inclined to look upon the solitary polypi referred to as midway in structure between the ordinary mucous and the fibrous growths, which he had described in his paper as the fibro-mucous variety.

2. *Dr Alex. Thom*, Crieff, read his paper entitled, TRACHEOTOMY IN CHILDREN, WHY UNSUCCESSFUL, which appeared at page 212 of this Journal.

Mr Cathcart said Dr Thom had not mentioned whether in these cases he had made post-mortem examinations, and investigated the condition of the lungs, bronchi, and trachea. Taking a well-marked case of croup they found a false membrane, which they would probably associate with the presence of a micro-organism, but when they went back to earlier stages—what was called merely a croupy state—the symptoms were not due to false membrane, but to spasm of the glottis. He should be inclined to consider that the spasm was just one of those reflex irritations where the effect of the irritant was more marked than the irritant itself. When the irritant increased, the irritation became more marked and the membrane was thrown out. It was a very open question in his mind how far one could distinguish between croup and diphtheria in the intermediate cases, though marked cases of either were quite distinguishable. This was true of every organized group, whether of diseases, of animals, or of plants. The question of the time when operation should be performed was an important one. If early operation in all cases presenting serious symptoms were advocated, cases would probably be included which would get well without operation. There was an element, too, in the operation itself which one did not often see alluded to. When the trachea was opened the power of the patient to eject foreign matters was much impaired. If they did not have the power of closing the glottis, and so increasing the tension within the chest, they would not have the power they did have of ejecting mucus. When tracheotomy was performed, the power of increasing this tension was lost. The question suggested itself whether an artificial mechanism could be introduced into the tube which would enable the patient to cough and get rid of the mucus and other matters in the trachea. He considered that they ought to be more energetic in the free use of antiseptics locally in both diphtheria and croup. If the theory of micro-organism were true then the disease was to be considered a local one at first, and antiseptics

successfully applied might have the effect of preventing it becoming constitutional.

Surgeon-Major Black asked if tubes were necessary for the purposes of the instrument. He thought it might be sufficient to keep the opening into the trachea patent by the insertion of a ring of metal which should not project into the lumen. This would get rid of the difficulty they had in connexion with the structure of the tubes.

Dr P. M'Bride was surprised to hear both *Dr Thom* and *Mr Cathcart* speak of croup and diphtheria as if they were two distinct entities. He thought it was now generally admitted that croup was diphtheria of the larynx, and that diphtheria in the box of the larynx differed from diphtheria elsewhere because of the few absorbents of the larynx. *Mr Cathcart* laid considerable stress on spasm of the glottis as a factor in dyspnoea, but he would like to ask if spasm of the larynx could kill. Would not syncope first occur, leading to a relaxation of the glottis and a return of the respiration. An explanation of the pseudo croup in children, which came on suddenly, usually at night, with a little hoarseness and difficulty of breathing, was found in the observations of *Moldenhauer* and others, who, by laryngoscopic examination, saw a swelling beneath the vocal cords, which rapidly disappeared.

Dr Hamilton Wylie thought that *Surgeon-Major Black* had never had a case of cellular tissue emphysema after tracheotomy, else he would not have suggested that tracheotomy tubes were of no value. He had found great benefit from the constant use of *Friar's balsam* in cases of diphtheria both before and after operation.

Dr James Ritchie had hoped that some member with a larger experience of operative interference would have addressed the Society. Although he had treated a large number of cases of croup and of diphtheria, he had found it necessary to operate in only eight cases—five of diphtheria and three of croup. He had also had another case of croup in which he had asked *Mr Caird* to operate. He did not share with *Dr M'Bride* the views of the London schools and of German pathologists. He believed that these are distinct diseases—that croup is a laryngitis with a simple inflammatory exudation, and that diphtheria is a specific disease—that the difference is not only a clinical one, but has a pathological basis. They differ clinically in so far that, although there may not be in diphtheria so much inflammatory action as in croup, there is much more secondary constitutional disturbance. *Dr Ritchie* had never seen a case of croup sink during the second week from failure of the vital powers. Diphtheritic croup is infectious; simple membranous croup is never infectious. Diphtheria is frequently followed by paralysis, croup never. Pathologically, croup bears the same relation to diphtheria of the larynx that membranous sore throat does to diphtheria of the fauces; the false

membrane is more superficial, and never shows the colonies of micrococci which are found in diphtheria. Cases of croup seemed to divide themselves into two classes. First, those with a very acute onset, the child going to bed apparently well, awaking a few hours later, feverish with croupy breathing and cough. In these the croupy symptoms are due partly to inflammatory cedema, partly to spasm; if treated with care, these usually recover without operation. The second class includes the cases in which a degree of cough and hoarseness have existed for some days before the more acute attack; these have had no cure in the early stage, and more frequently require operation. But this is not a hard and fast division; the only fatal case of croup in the speaker's practice was one of acute onset with very high fever; death was due to extension of the disease downwards; at the post-mortem examination even the small bronchial tubes were found to be lined with false membrane. Careful examination, after hardening and staining, failed to reveal any trace of colonies of micrococci such as are found in diphtheria. Dr Ritchie's experience of tracheotomy for diphtheria was very unsatisfactory. All his five cases proved fatal—four of them by extension downwards, one of them by failure of the vital powers during the second week. Of the four cases of croup, three recovered (including the one operated on by Dr Caird); the cause of death in the fourth case has been already noted. Dr Thom had asked the question, Why are these operation cases not successful? Dr Ritchie thought that the report of Dr Thom's cases bore intrinsic evidence that the fatal result was in no case due to want of skill and care during the operation. Dr Thom was not to blame for the lateness of the operation, and he had evidently a wholesome dread of the entrance of blood into the air passages. The speaker believed that the first cause of want of success is delay in operation; so soon as the aeration of the blood is insufficient, tracheotomy should be performed. The next cause is admission of blood to the air passages, causing lobular pneumonia. The next is extension of the disease downwards; and in diphtheria failure of the vital powers is a not uncommon cause, which, however, is not confined to operation cases. Dr Ritchie agreed with Mr Cathcart that the derangement of the mechanism of coughing after tracheotomy added to the trouble of the patient. A similar alteration was observed in patients who had paralysis of one vocal cord, as well as some cause of cough. But he had always found ability to expel the secretion after tracheotomy.

Dr Thom, in reply, said he had not made any full post-mortem examination, but did make an inspection of the larynx and trachea in all of them. Tubes, he thought, were necessary for the purpose of directing the mucus outwards. He still held to the view which used to be taught in Edinburgh, that croup and diphtheria were different.

INFORMATION REGARDING MEDICAL EDUCATION AND EXAMINATIONS.

THE following are the General Medical Council's Requirements for the Preliminary Examination of Medical Students:—

No person shall be allowed to be registered as a Medical Student unless he shall have previously passed a Preliminary Examination in the subjects of General Education as specified in the following list:—1. English Language, including Grammar and Composition; 2. Latin, including Grammar, Translation from specified authors, and Translation of easy passages not taken from such authors; 3. Elements of Mathematics, comprising (a) Arithmetic, including Vulgar and Decimal Fractions; (b) Algebra, including Simple Equations; (c) Geometry, including the first book of Euclid, with easy questions on the subject-matter of the same; 4. Elementary Mechanics of Solids¹ and Fluids, comprising the Elements of Statics, Dynamics, and Hydrostatics; 5. One of the following optional subjects:—(a) Greek; (b) French; (c) German; (d) Italian; (e) any other Modern Language; (f) Logic; (g) Botany; (h) Zoology; (i) Elementary Chemistry. These subjects may be passed at one or more Examinations.

The following List of Examining bodies are recognised for registration as Medical Students, provided that in all cases the subject of Mechanics, as above set forth, be shown to have been included in the Examination:—

(1.) UNIVERSITIES OF THE UNITED KINGDOM.

Oxford.—Examination for a Degree in Arts; Responsions; Moderations; Local Examinations (Senior), Certificate to include Latin and Mathematics; Local Examinations (Junior), Certificate to include Latin and Mathematics; and also one of the following optional subjects:—Greek, French, German.

Cambridge.—Examination for a Degree in Arts; Previous Examination; Local Examinations (Senior), Certificate to include Latin and Mathematics; Local Examinations (Junior), Certificate to include Latin and Mathematics, and also one of the following optional subjects:—Greek, French, German. Higher Local Examinations.

Durham.—Examination for a Degree in Arts; Examination for Students at the end of their first year; Examination for Certificate of Proficiency.

Oxford and Cambridge Schools' Examination Board.—Certificate to include the following subjects, an adequate knowledge of English Grammar and Orthography, as shown in the course of the Examination, to the satisfaction of the Examiners, being held as conforming to the requirements of the Medical Council in regard to those subjects:—(a) Arithmetic, including Vulgar and Decimal Fractions; (b) Algebra, including Simple Equations; (c) Geometry, including the first two books of Euclid; (d) Latin, including Translation and Grammar; (e) and one of the following optional subjects:—Greek, French, German.

London.—Examination for a Degree in Arts or Science; Preliminary Scientific (M.B.) Examination; Matriculation Examination.

Victoria University.—Preliminary Examination, Latin to be one of the subjects; Entrance Examination in Arts, to include all the subjects required.

Edinburgh.—Examination for a Degree in Arts; Preliminary Examination for Graduation in Science or Medicine and Surgery. Local Examinations (Senior Certificate); Certificate to include English Literature, Arithmetic,

¹ In the case of Students in Universities with a prolonged curriculum, where the Examination in Mechanics required for their Degree is taken at a more advanced period of study than before commencing Medical Education, Registration can be effected only on having passed the Examination in Mechanics, but their Registration may be then antedated to the period at which the Preliminary was passed.

Algebra, Geometry, Latin, and also one of the following optional subjects :—Greek, French, German. Local Examinations (Junior Certificate); Certificate to include English Literature, Arithmetic, Algebra, Geometry, Latin, and also one of the following optional subjects :—Greek, French, German.

Aberdeen.—Examination for a Degree in Arts; Preliminary Examination for Graduation in Medicine or Surgery; Local Examination (Senior Certificate); Certificate to include English Literature, Arithmetic, Algebra, Geometry, Latin, and also one of the following optional subjects :—Greek, French, German. Local Examinations (Junior Certificate); Certificate to include all the subjects required.

Glasgow.—Examination for a Degree in Arts; Preliminary Examination for Graduation in Medicine or Surgery; Local Examinations (Senior Certificate); Certificate to include English Literature, Arithmetic, Algebra, Geometry, Latin, and also one of the following optional subjects :—Greek, French, German. Local Examinations (Junior Certificate); Certificate to include all the subjects required.

St Andrews.—Examination for a Degree in Arts; Preliminary Examination for Graduation in Medicine or Surgery; Local Examinations (Senior Certificate); Certificate to include English Literature, Arithmetic, Algebra, Geometry, Latin, and also one of the following optional subjects :—Greek, French, German. Local Examinations (Junior Certificate), to include all the subjects required.

Dublin.—Examination for a Degree in Arts; Public Entrance Examination General Examination at end of Senior Freshman year.

Queen's University (Ireland).—Examination for a Degree in Arts; Entrance or Matriculation Examination; Previous Examination for B.A. Degree; Local Examinations for Men and Women; Certificate to include all the subjects required by the General Medical Council.

Royal University of Ireland.—Matriculation Examination.

(2.) OTHER BODIES NAMED IN SCHEDULE (A) TO THE MEDICAL ACT (1858).

The Society of Apothecaries of London.—Examination in Arts.

Royal Colleges of Physicians and Surgeons, Edinburgh.—Preliminary (combined) Examination in General Education.

Faculty of Physicians and Surgeons of Glasgow.—Preliminary Examination in General Literature.

Royal College of Surgeons in Ireland.—Preliminary Examination, Certificate to include Mathematics.

(3.) EXAMINING BODIES IN THE UNITED KINGDOM NOT INCLUDED IN SCHEDULE (A) TO THE MEDICAL ACT (1858).

College of Preceptors. — Examination for a First Class Certificate, or Second Class Certificate of First or Second Division, Algebra, Geometry Latin, and a Modern Language having been taken.

Intermediate Education Board of Ireland; Junior, Middle, and Senior Grades. —Certificate in each case to include all the subjects required by the General Medical Council.

Queen's College, Belfast; *Queen's College, Cork*; *Queen's College, Galway*. —Matriculation Examination.

St David's College, Lampeter.—Responsions Examination to include all the subjects required.

Educational Institute of Scotland.—Preliminary Medical Examination.

Pharmaceutical Society of Great Britain.—Preliminary and Minor Examinations *pro tanto*.

Pharmaceutical Society of Ireland.—Preliminary Examination *pro tanto*.

(4.) INDIAN, COLONIAL, AND FOREIGN UNIVERSITIES AND COLLEGES.

Universities of Calcutta, Madras, and Bombay.—Entrance Examination, Certificate to include Latin.

McGill College, and Bishop's College, Montreal; Toronto.—Matriculation Examination.

Trinity College, Toronto; Queen's College, Kingston; Victoria College, Upper Canada.—Matriculation Examination.

Western University of Ontario.—Entrance Examination, Certificate to include all the subjects required for registration.

College of Physicians and Surgeons of Ontario.—Preliminary Examination, Certificate to include all the subjects required for registration.

University of Manitoba.—Previous Examination.

King's College, Nova Scotia.—Matriculation Examination; Responsions.

University of Halifax, Nova Scotia.—Matriculation Examination.

University of Fredericton, New Brunswick.—Matriculation Examination.

Dalhousie College and University, Halifax, Nova Scotia.—Matriculation and Sessional Examinations.

University of California.—Examination in Department of Letters.

University of Melbourne.—Matriculation Examination.

University of Sydney.—Matriculation Examination.

University of the Cape of Good Hope.—Matriculation Examination; Examination for a Degree in Arts.

University of Adelaide.—Matriculation Examination.

Codrington College, Barbados.—English Certificate for Students of two years' standing, and Latin Certificate, or "Testamur."

Tasmanian Council of Education.—Examination for the Degree of Associate of Arts, Certificate to include Latin and Mathematics.

Christ's College, Canterbury, New Zealand.—Voluntary Examinations, Certificate to include all the subjects required by the General Medical Council.

University of New Zealand.—Entrance Examination.

University of Otago, New Zealand.—Preliminary Examination.

Ceylon Medical College.—Preliminary Examination (Primary Class).

Germany and other Continental Countries.—Gymnasial, Abiturienten-Examen, and other Corresponding Entrance Examinations to the Universities.

Gymnasia of the Circuit of Dorpat.—Examinations of Maturity.

The following pages contain a tabular abstract of the regulations of the various Licensing Boards, as well as a list of the Hospitals, Dispensaries, etc., attached to our Scotch Medical Schools; also the regulations for the Army, Indian, and Navy Medical Services. The space at our disposal does not allow of more detailed information. But, in point of fact, the regulations of all Licensing Boards now correspond much more closely than they used to do, and the regulations of the General Medical Council afford a key to the general requirements of all of them. For special information, application should always be made to the Secretaries of the Licensing Boards; or, in the case of the Universities, recourse may be had to the published Calendars.

The *Preliminary Examinations* are usually held before the commencement, and at the end, of the Winter Session,—viz., in October, March, or April—sometimes also at the end of the Summer Session. The Professional Examinations in Universities are usually after the Winter and during the Summer Sessions; in Edinburgh, however, the first Professional is held in October as well as April. The other Licensing Boards' examinations are held at various periods throughout the year. Special examinations, under circumstances of urgency, can be held at almost any time; but they, of course, entail considerable addition to the expense.

COURSE OF STUDY REQUIRED BY THE VARIOUS BOARDS OF THE UNITED KINGDOM.

	Age.	Anatomy.	Dissections.	Chemistry.	Practical Chemistry.	Materia Medica.	Physiology or Institutes of Medicine.	Surgery.	Practice of Medicine.	Midwifery.	Medical Jurisprudence.	Pathology or Morbid Anatomy.	Botany.	Natural History.	Practical Pharmacy.	Clinical Surgery.	Clinical Medicine.	Hospital Attendance.	Practical Midwifery.	Dispensary or Out-door Practice.	Vaccination.
Edinburgh University, M.B. & C.M.,	Years.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.
University of Glasgow, M.B. & C.M.,	21	6	6	6	3	6	6	6	6	6	3	6	3	3	3	6	6	24	8 mo.,† or 6 cas.	6	
University of Aberdeen, M.B. & C.M.,	21	6	6	6	3	6	6	6	6	6	3	6	3	3	3	6	6	24	do.	6	
University of St Andrews, M.B. & C.M.,	21	6	6	6	3	6	6	6	6	6	3	6	3	3	3	6	6	24	do.	6	
London University, M.B.,	21	6	6	6	3	6	6	6	6	6	3	6	3	3	1 crs.	2 yrs.	6	24	20 cas.	6	
University of Durham, M.B. & M.D.,	21	6	12	6	1 crs.	1 crs.	6	6	6	1 crs.	1 crs.	1 crs.	3	3	1 crs.	2 yrs.	4 yrs.	4 yrs.	20 cas.	6	
Dublin University, M.B.,	21	6	6	6	3	3	3	6	6	6	3	3	3	3	3	3	9	24	6 mo.		
" Surgical Diploma,	12	18	6	6	3	3	3	12	6	6	3	3	3	3	3	27	27	24	6 mo.		
The Queen's University of Ireland, M.D.,	12	12	12	6	3	6	12	6	6	6	3	6	3	3	3	12	12	24	3 mo.		
Royal College of Physicians, London,	21	12	12	6	3	3	12	6	6	6	3	6	3	3	3	3	9	24	20 cas.		
Royal College of Physicians, Edinburgh,	21	6	6	6	3	3	6	6	6	6	3	3	3	3	3	3	6	24	6 cases		
King and Queen's Col. of Phys. Ireland,	21	6	6	6	3	3	6	6	6	6	3	3	3	3	3	6	21	27	6 mo.		
Royal College of Surgeons, London,*	21	12	12	6	6	6	6	6	6	6	6	6	6	6	3	27*	9*	33			Cert.
Royal College of Surgeons, Dublin,	21	18	18	6	6	3	12*	12	6	6	3	3	3	3	3	18	9	27			
Royal College of Surgeons, Edinburgh,	21	12†	12†	6	6	3	18	6	6	6	3	3	3	3	3	6†	6	24	6 cas.	6	
Faculty of Phys. and Surgeons, Glasgow,	21	12	12	6	3	3	3	6 or 12	6	6	3	3	3	3	3	6 or 12	6	24	6 cas.		
For Triple Qualification by Royal Colleges of Phys. and Surgs. of Edinburgh, and Faculty of Phys. and Surgs. of Glasgow,	21	6	12	6	3	3	6	6	6	6	3	3	3	3	3	3	9	24	6 cas.	6	
Apothecaries' Hall, England,	21	12	6	6	3	3	6	6	12	3	3	6	3	3	Appr.	9	27	20 cas.	20 cas.		
" Ireland,	21	6	12	6	3	3	6	6	6	6	3	3	3	3	Appr.	9	18	27	20 cas.		

ENGLISH POOR-LAW BOARD.—Candidates for the appointment of Medical Officer are required to be registered under the Medical Act, and must be legally qualified to practise both Medicine and Surgery, in virtue of Diplomas or Licenses granted by competent legal authority in England, Scotland, or Ireland.

Information respecting exceptions to these regulations under various circumstances, and other details as to the order in which, according to some Licensing Bodies, the courses should be taken out, etc., must be obtained by consulting the published Charts of the Colleges, etc. Students should apply to the Secretary to each Board which they intend to pass for a detailed copy of its Regulations.

* Students from the Schools of Scotland are admitted to examination at the Royal College of Surgeons of England, if they have followed the course of study required by the regulations of the Royal College of Surgeons of Edinburgh. Students in Scotland, therefore, are not required to attend more than one course of Physiology, six months Clinical Surgery, six months Clinical Medicine, and twenty-four months Hospital.

† Or Candidates may take six months Lectures and eighteen months Dissections. A third Course of Surgery is required, but it may be either Principles and Practice of Surgery or Clinical Surgery.

‡ In lieu of the above, the University of Edinburgh requires, as an alternative, attendance on at least Twelve Cases of Labour under the superintendence of a registered Medical Practitioner.

MEDICAL SCHOOLS OF SCOTLAND, 1888-89.

WINTER SESSION.

SUBJECTS.	UNIVERSITY OF EDINBURGH.	SCHOOL OF MEDICINE, EDINBURGH.	UNIVERSITY OF GLASGOW.	ANDERSON'S COLLEGE MEDICAL SCHOOL, GLASGOW.	GLASGOW ROYAL INFIRMARY SCHOOL OF MEDICINE.	WESTERN MEDICAL SCHOOL, GLASGOW.	UNIVERSITY OF ABERDEEN.	UNIVERSITY OF ST ANDREWS.
Anatomy, Systematic and Practical, with Demonstrations.	Prof. Sir W. Turner.	Dr J. Symington and Mr Macdonald Brown.†	Professor Cleland.	Dr A. M. Buchanan.	Mr H. E. Clark.	Mr J. T. Carter.	Professor Struthers.	...
Physiology, or Institutes of Medicine.*	Professor Rutherford.	Mr James Hunter and Dr Noël Paton.‡	Professor M'Kendrick.	Dr James Christie.	Dr John Barlow.	...	Professor M'William.	Prof. Pettigrew.
Chemistry, and Practical Chemistry.	Professor C. Brown.	Dr Macadam, Mr King, Mr I. Macadam, and Dr Drinkwater.	Professor J. Ferguson.	Professor Dittmar.	Dr James M. Milne.	...	...	Prof. Purdie.
Materia Medica and Therapeutics.	Prof. T. R. Fraser.	Dr W. Craig and Dr G. A. Gibson.‡	Professor Charteris.	Dr Napier.	Dr John Dougall.	...	Professor Cash.	...
Practice of Medicine.	Professor Grainger Stewart.	Drs Wyllie, Affleck, Bramwell, & James.†	Professor Gairdner.	Dr S. Gemmell.	Dr J. W. Anderson.	Dr M'Vail.	Prof. Smith-Shand.	...
Surgery.	Professor Chiene.	Dr MacGillivray, Mr Cathcart, Mr F. M. Caird, Mr Hodsdon, and Mr Scott Lang.	Professor Sir G. H. B. Macleod.	Dr Dunlop.	Dr W. Macewen.	Dr Knox.	Professor A. Ogston.	...
Midwifery, etc.	Professor Simpson.	Drs C. Bell and M. Murray.	Professor Leishman.	Summer-Dr A. Wallace.	In Summer.	Dr W. L. Reid.	Professor Stephenson.	...
Natural Philosophy.	Professor Tait.	...	Prof. Sir W. Thomson.	Prof. Blyth.	...	...	...	Prof. Butler.
Natural History, and Practical Natural History.	Professor Cossar Ewart.	...	Professor Young.	...	...	...	Professor A. Nicholson.	Prof. M'Intosh.
General and Practical Pathology.	Professor Greenfield.	Dr A. Bruce and Dr W. Russell.	...	At Royal or Western Infirmary.	In Summer.	At Western Infirmary.	Professor Hamilton.	...
Clinical Medicine.	Professors G. Stewart, T. R. Fraser, Greenfield, and Simpson on Diseases of Women.	Drs Muirhead, Brakenridge, Wyllie, Affleck, and H. Croom for Diseases of Women.‡	Prof. M'Call Anderson and Prof. Gairdner.	The Physicians of the Royal Infirmary.		Physicians of the Western Infirmary.	Drs Smith-Shand, Fraser, and Blaikie Smith.	...
Clinical Surgery.	Professor Annandale.	Mr Duncan and Mr Miller.†	Prof. George Buchanan and Prof. Macleod.	The Surgeons of the Royal Infirmary.		Surgeons of the Western Infirmary.	Drs Ogston, O. Will, and Garden.	...
Medical Jurisprudence and Public Health.	...	Dr Littlejohn.	...	Public Health—Dr Glaister and Dr Eben. Duncan.		...	...	...

In connexion with the University of Edinburgh, during the Winter Session classes of Practical Materia Medica (including Pharmacy), Practical Pathology, and Practical Hygiene are taught by the Professors of these subjects and their Assistants; lectures and clinical instruction on Diseases of Children, at Royal Hospital for Sick Children, are given by Dr James Carmichael and Charles E. Underhill, M.B.; on Comparative Embryology by Mr George Brook; and on Philosophy of Natural History by Mr G. J. Romanes, M.A., LL.D.

Lectures are given in the School of Medicine, Edinburgh, during the Winter Session on the Diseases of the Ear by Dr Kirk Duncanson; on Diseases of the Eye by Dr John Robertson; on Diseases of the Skin by Dr Allan Jamieson; on Diseases of Children by Mr J. Bell and Dr Playfair; on Vaccination by Drs Husband and Buist; on Diseases of the Tropics and Climatology by Dr Felkin; and on Practical Midwifery and Clinical Gynaecology by Drs H. Croom, C. Bell, and P. Young.

There are Special Classes for Women on Chemistry, Anatomy, Clinical Medicine, and Clinical Surgery.

Practical Physiology is taught by the respective Professors during the Winter and Summer Sessions in Edinburgh, and in Summer at Aberdeen.

Practical Surgery is taught during the Winter Session in the University of Aberdeen by Professor Ogston and Assistant.

* This course is equivalent to that given under the name of General Anatomy and Physiology in the English Schools. Special schedules are issued by the London Boards for their Scotch students which should always be inquired for.

† These are not conjoint courses, but separate ones by the gentlemen named.

‡ This is a joint course.

MEDICAL SCHOOLS OF SCOTLAND, 1889.

SUMMER SESSION.

SUBJECTS.	UNIVERSITY OF EDINBURGH.	SCHOOL OF MEDICINE, EDINBURGH.	UNIVERSITY OF GLASGOW.	ANDERSON'S COLLEGE MEDICAL SCHOOL, GLASGOW.	GLASGOW ROYAL INFIRMARY SCHOOL OF MEDICINE.	WESTERN MEDICAL SCHOOL, GLASGOW.	UNIVERSITY OF ABERDEEN.
Practical Anatomy and Demonstrations.	Prof. Sir Wm. Turner.	Dr J. Symington and Mr M. Brown.*	Professor Cleland.	Dr A. M. Buchanan.	Mr H. E. Clark.	Mr J. T. Carter.	Professor Struthers.
Botany.	Professor Bayley Balfour.	Mr A. N. M'Alpine.	Professor F. O. Bower.	Prof. Wilson.	...	...	Professor Trail.
Practical Materia Medica.	Prof. T. R. Fraser.	Dr Craig and Dr Gibson.*	Professor Charteris.	Dr Napier.	In Winter.	...	Professor Cash.
Midwifery, etc.	Professor Simpson.	Drs Croom, C. Bell, B. Hart, F. Barbour.*	Professor Leishman.	Dr A. Wallace.	Dr James Stirton.	Dr W. L. Reid.	Prof. W. Stephenson.
Medical Jurisprudence and Public Health.	Professor Sir Douglas MacLagan.	Dr Littlejohn.†	Professor Simpson.‡	Dr Eben. Duncan.	Dr Glaister. P. H. in Winter.	...	Professor M. Hay.
Comparative Anatomy.	Prof. Sir Wm. Turner.	...	Professor Young.‡	...	...	...	Professor Struthers.
Practical Physiology, incl. Histology.	Professor Rutherford.	Mr J. Hunter and Dr Noël Paton.	Professor M'Kendrick.	Dr James Christie.	Dr Barlow.	...	Professor M'William.
Practical Pathology, incl. Histology.	Professor Greenfield.	Dr A. Bruce and Dr W. Russell.	Dr Joseph Coats.	Dr Newman, at Royal Infirmary.	Dr Newman.	At Western Infirmary.	Professor Hamilton.
Organic and Practical Chemistry.	Professor Crum Brown.	Dr Macadam, Mr King, Mr I. Macadam, Dr Drinkwater.*	Professor J. Ferguson.	Professor Dittmar.	Dr J. M. Milne.	...	...
Operative Surgery.	Professor Chiene.	Mr Miller, Dr C. W. MacGillivray, Mr C. W. Cathcart, Mr Caird, and Mr Hodsdon.*	Professor Sir G. H. B. Macleod.	Dr Dunlop.	Dr W. Macewen.	Dr Knox.	Professor A. Ogston.
Mental Diseases.	Dr Clouston.	Dr J. B. Tuke.	Dr Yellowlees.	...	Dr Alex. Robertson.	...	Dr Reid.
Natural History.	Professor Cossar Ewart.	...	Professor Young.	...	...	...	Professor Nicholson.
Clinical Medicine.	Professors G. Stewart, T. R. Fraser, Greenfield, and Simpson on Diseases of Women.	Drs Muirhead, Brakenridge, Wyllie, Affleck, and H. Croom for Diseases of Women.‡	Prof. M'Call Anderson and Prof. Gairdner.	The Physicians of the Royal Infirmary.		Physicians of Western Infirmary.	...
Clinical Surgery.	Professor Annandale.	Mr Duncan and Mr Miller.	Prof. George Buchanan and Prof. Macleod.	The Surgeons of the Royal Infirmary.		Surgeons of West. Infirmary.	...

In connexion with the University of Edinburgh during the Summer Session, classes of Practical Botany, Practical Natural History, and Practical Hygiene, are taught by the Professors of these subjects and their Assistants; lectures and clinical instruction on Diseases of Children, at Royal Hospital for Sick Children, are given by Dr J. Carmichael and Charles E. Underhill, M.B.; on Diseases of the Eye by Dr D. Argyll Robertson; and on Comparative Embryology by Mr George Brook.

Instruction in Vaccination is also given at the Royal Public Dispensary, Edinburgh, on Wednesdays and Saturdays at 12, both Summer and Winter, by Dr Husband, and in the Western Dispensary, on Thursday, at 3 o'clock, by Dr Buist; at the Faculty Hall, Glasgow, on Mondays at 2, by Dr Thomson; and at the Royal Infirmary, Glasgow, on Mondays and Thursdays at 12 o'clock, by Dr Thomson, and by Dr M'Vail, at Western Infirmary on Mondays at 1 p.m. Medical Psychology and Insanity are taught in Summer by Dr Clouston and Dr J. B. Tuke in Edinburgh, in Glasgow by Dr Yellowlees and Dr Robertson, and in Aberdeen by Dr Reid; Practical Medicine and Medical Diagnosis by Dr James and Dr Byrom Bramwell in Edinburgh; the Diseases of Children by Mr J. Bell and Dr Playfair in School of Medicine, Edinburgh; the Diseases of the Eye by Dr John Robertson and Mr George Berry in School of Medicine, Edinburgh; Dr M'Kenzie Davidson in Aberdeen, and by Dr Thomas Reid, Mr Clark, and Dr Wolfe in Glasgow; the Diseases of the Ear by Dr Kirk Duncanson, and Ear and Throat by Dr M'Bride, in School of Medicine, Edinburgh, and of the Ear by Dr Johnston Macfie, Dr Barr, and Dr Walker Downie in Glasgow, and in Aberdeen, Ear and Larynx Diseases, by Dr M'Kenzie Booth; Diseases of the Throat and Nose, by Dr Newman in Glasgow; Diseases of the Skin by Dr Allan Jamieson in School of Medicine, Edinburgh, and in Aberdeen by Dr Garden; Dental Surgery by Dr J. C. Woodburn in Glasgow, and Dr Williamson in Aberdeen. Laryngology and Medical Ophthalmology in Edinburgh by Dr John Wyllie. Diseases of the Tropics and Climatology in Edinburgh by Dr R. W. Felkin. Lectures on Public Health are delivered during the Summer Session in Aberdeen by Professor Hay, and Surgical Pathology in School of Medicine, Edinburgh, by Mr Scott Lang.

Special Courses for Women in School of Medicine, Edinburgh, on Practical Chemistry, Medical Jurisprudence, and Midwifery.

* These are not conjoint courses, but separate ones by the gentlemen named.

† This is a joint course.

‡ Dr Littlejohn gives courses during both the Winter and Summer Sessions.

‡ In Winter.

. For additional Summer Courses on special subjects, see the Prospectus of each School.

LIST OF HOSPITALS, DISPENSARIES, ETC., IN CONNEXION
WITH THE MEDICAL SCHOOLS OF SCOTLAND.

EDINBURGH.

ROYAL INFIRMARY, including LOCK HOSPITAL. Upwards of 650 Beds. Visits daily from 12 till 2 P.M. Consulting Physicians, Dr George W. Balfour and Professor Sir Douglas Maclagan; Dr Alexander Keiller (for Diseases of Women). Physicians, Professors Grainger Stewart, Fraser, and Greenfield; Drs Claud Muirhead, D. J. Brakenridge, John Wyllie, and J. O. Affleck; Professor Simpson and Dr J. Halliday Croom (for Diseases of Women). Assistant Physicians, Drs Andrew Smart, Alex. James, and Byrom Bramwell; Drs D. Berry Hart and A. H. F. Barbour (for Diseases of Women). Extra Physician, Dr Allan Jamieson (for Diseases of the Skin). Consulting Surgeons, Dr Gillespie, Dr P. H. Watson, and Mr Joseph Bell. Surgeons, Professors Annandale and Chiene, Mr John Duncan, Mr A. G. Miller, and Dr P. H. Maclaren. Assistant Surgeons, Drs Chas. W. MacGillivray, J. M. Cotterill, Chas. W. Cathcart, Francis M. Caird, and J. W. B. Hodsdon; Ophthalmic Surgeons, Dr Argyll Robertson and Mr George A. Berry. Surgeon to the Ear and Throat Department, Dr P. M'Bride. Pathologists, Alex. Bruce and William Russell.

CONVALESCENT HOUSE, Corstorphine. Surgeon, Mr Cotterill.

CHALMERS HOSPITAL FOR THE SICK AND HURT (Public and Private Wards). 40 Beds for medical and surgical patients. In Private Wards the patients are charged 3s. per diem for board. Physician, Dr George W. Balfour. Surgeon, Dr P. H. Watson.

ROYAL MATERNITY AND SIMPSON MEMORIAL HOSPITAL. 30 Beds; from 200 to 300 in-patients and about 700 out-patients yearly. Consulting Physicians, Drs Moir and Graham Weir. Consulting Surgeon, Professor Annandale. Physicians, Dr Keiller, Professor Simpson, Drs Halliday Croom and Underhill. Assistant Physicians, Drs Berry Hart and Freeland Barbour. Secretary and Treasurer, Andrew Scott, C.A.

ROYAL HOSPITAL FOR SICK CHILDREN. 80 Beds; number of patients for 1887, 7036. Consulting Physicians, Dr Graham Weir, Dr Geo. W. Balfour, Dr R. Peel Ritchie, and Professor T. Grainger Stewart. Consulting Surgeon, Professor Annandale. Surgeon, Mr Joseph Bell. Pathologist, Dr G. S. Woodhead. Ordinary Physicians, Dr C. E. Underhill, Dr Jas. Carmichael, and Dr John Playfair. Extra Physicians, Dr Burn Murdoch, Dr R. M. Johnston, and Dr G. H. Melville Dunlop. Surgeon-Dentist, Dr John Smith. Ophthalmic Surgeon, Dr Argyll Robertson. Resident Physicians, Drs George P. Boddie and George Wilson.

ROYAL PUBLIC DISPENSARY AND VACCINE INSTITUTION. About 12,000 patients annually. Consulting Physician, Dr George Balfour. Consulting Surgeon, Dr Littlejohn. Medical Officers, Drs W. Husband, D. Wilson, Andrew, Cotterill, P. Young, A. Black, Caird, Dunlop. Consulting Physicians-Accoucheur, Drs Keiller and Charles Bell. Midwifery and Diseases of Women, Drs Andrew and Young. Vaccination, Dr W. Husband. Apothecary, Mr W. Duncan. Clinique daily at 3 P.M. Vaccination, Wednesday and Saturday, 12 noon. Midwifery and Diseases of Women, Tuesday and Friday, 1 P.M. Laboratory, 3 P.M. and 7 P.M. Secretary, R. C. Gray, S.S.C. James Andrew, M.D., Secretary to the Medical Officers.

NEW TOWN DISPENSARY, 17 Thistle Street. About 10,000 patients annually. Medical Officers, Drs Gibson, Milligan, Scott Lang, Thomson, Felkin and Thyne. Acting Physicians-Accoucheur, Drs Brewis and Wood. Superintendent of Vaccination, Dr Cadell. Diseases of the Ear and Throat,

Dr Johnston. Diseases of the Eye, Dr Mackay. Diseases of Women, Dr Brewis. Clinique daily at 3 P.M. Vaccination on Tuesdays and Fridays at 12.

THE EDINBURGH PROVIDENT DISPENSARY, Marshall Street. Upwards of 8500 patients annually. Consulting Physician, Dr Andrew Smart. Consulting Surgeon, Dr Joseph Bell. Dental Surgeon, R. Urquhart. Medical Officers, Dr Charles Bell, Dr F. Troup, Dr A. Matheson, Dr Robertson, Dr E. Price, and Dr G. Price. Assistant Medical Officer, Dr W. Keiller. Secretary, R. Urquhart. Vaccination (Tuesday and Friday at 1 o'clock), Dr C. Bell and Dr Matheson. Diseases of Women and Children, Dr C. Bell and Dr Matheson (Tuesday and Friday at 1 o'clock). Out-door practice and Practical Midwifery daily. Surgical Instrument Maker, A. Young, Forrest Road. Janitor, John Cunningham.

WESTERN DISPENSARY, Chalmers Institute, Ponton Street, Fountain-bridge. Chairman, James Simson. Acting Committee, Miss Chalmers, Miss M. Douglas, Mrs Owen, S. Henderson, Stair Kerr, Dr Bruce Bremner, A. Dickison, Dr Pringle, A. McLellan. Consulting Physician, Dr A. Peddie. Consulting Surgeon, Dr Joseph Bell. Consulting Physician for Diseases of Women, Dr Croom. Physicians, Drs Murdoch Brown, Bruce, and D. Noël Paton. Surgeon, Dr Caird. Diseases of the Throat, Dr Hunter Mackenzie. Diseases of Women, Dr Milne Murray. Vaccination Officer, Dr J. B. Buist. Midwifery, Dr Barbour. Diseases of the Eye, Dr Sym. Secretary to Medical Board, Dr J. Murdoch Brown. Treasurer, Mrs Macnider, 31 Stafford Street. Open daily from 3.45 to 4.45 P.M. Diseases of Women, Monday, 4.45 P.M. Diseases of Throat and Ear, Monday, 4 P.M. Vaccination, Thursday, 3 P.M. Special Surgical Cases, Wednesday, 4 P.M. Diseases of the Eye, Thursday, 4 P.M.

ROYAL ASYLUM FOR THE INSANE. About 850 patients, about 300 of whom are private patients. Physician, Dr Clouston.

EYE, EAR, AND THROAT INFIRMARY, 6 Cambridge Street, Lothian Road, Edinburgh. Consulting Surgeon, Joseph Bell, F.R.C.S.E. Surgeons, J. J. Kirk Duncanson, M.D., F.R.C.P.E., G. Hunter Mackenzie, M.D., J. Maxwell Ross, M.A., F.R.C.S., and William George Sym, M.B., C.M. Eye Clinique daily at 1 P.M. Ear Clinique on Mondays, Thursdays, and Saturdays, at 12 noon. Throat Clinique on Tuesdays and Fridays at 4 P.M.

EYE DISPENSARY, 54 Cockburn Street. About 1500 patients annually. Surgeons, Mr Berry and Mr Caverhill. Assistant Surgeon, Dr Mackay. Open Mondays, Wednesdays, and Fridays, at 1 P.M. Clinical Instruction is given in the Diagnosis and Treatment of Diseases of the Eye (including minor operations) by the Surgeons in charge.

DENTAL HOSPITAL AND SCHOOL, 30 Chambers Street. Consulting Physician, Alexander Peddie, M.D., F.R.C.P.E. Consulting Surgeon, Joseph Bell, F.R.C.S.E. Consulting Dental Surgeon, John Smith, M.D., LL.D., F.R.C.S.E. Lecturers, Messrs Andrew Wilson, W. Bowman Macleod, and G. W. Watson. Dental Surgeons, Messrs C. Matthew, W. Bowman Macleod, M. Finlayson, A. Wilson, M. Macgregor, G. W. Watson, and J. S. Durward. Assistant Dental Surgeons, James Mackintosh, James Lindsay, W. Forrester, John S. Amore, J. G. Munro, and W. Wilson. Tutorial Dental Surgeon, F. Page. Dean and Hon. Treasurer, W. Bowman Macleod. Hon. Secretary, Lindsay Mackersy, W.S., 3A North St David Street. Daily, 9 to 10 A.M. Average number of patients, 7000 per annum.

GLASGOW.

ROYAL INFIRMARY. 582 Beds. Visit daily at 9 A.M. Dispensary Hour, 2 P.M. Physicians, Drs Wood Smith, Alex. Robertson, J. W. Anderson, and Samson Gemmell. Surgeons, Drs Macewen, Dunlop, Clark, Knox, Lothian,

and Wm. J. Fleming. Gynæcologist, Dr Stirton. Aural Surgeon, Dr Macfie. Dental Surgeon, Dr J. C. Woodburn. Assistant Physicians, Drs Dougall, Middleton, Henderson, Black, Macphée, and J. L. Steven. Assistant Surgeons, Drs Barlow, Adams, Muir, Shaw, Whitson, and Macintyre. Diseases of the Skin, Dr Provan. Diseases of the Throat, Dr Newman. Diseases of the Eye, Dr Freeland Fergus. Pathologist, Dr Newman. Vaccinator, Hugh Thomson, M.D. Electrician, Dr Macintyre. M. Thomas, M.D., Superintendent.

WESTERN INFIRMARY. This Hospital contains about 400 Beds for Medical and Surgical patients. There are Wards for Skin Diseases and Diseases of Women, and an out-door Midwifery department. Physicians, W. T. Gairdner, M.D., T. McCall Anderson, M.D., James Finlayson, M.D., Gavin P. Tennent, M.D. Diseases of Women, W. Leishman, M.D. Surgeons, Sir George H. B. Macleod, M.D., George Buchanan, M.D., A. Patterson, M.D., Hector C. Cameron, M.D. Assistant-Physicians, Joseph Coats, M.D., Jas. Christie, M.D., and David C. McVail, M.D. Dispensary Physicians, John Alexander, M.D., Wm. G. Dun, M.D. Dispensary Physicians for Diseases of Women, W. L. Reid, M.D., Robert Kirk, M.D., Murdoch Cameron, M.D. Dispensary Surgeons, J. C. Renton, M.B., Geo. T. Beatson, M.D., David Newman, M.D. Extra-Dispensary Physicians, R. Stevenson Thomson, M.B., George Dickson, M.D. Extra-Dispensary Surgeons, A. E. Maylard, M.S., Jas. Parker, M.D. Pathologist, Joseph Coats, M.D. Dispensary Surgeon for Diseases of the Ear, Thomas Barr, M.D. Dispensary Physicians for Diseases of the Throat, Joseph Coats, M.D., and John Alexander, M.D. Hon. Consulting Ophthalmic Surgeon, Thomas Reid, M.D. Dental Surgeon, James R. Brownlie, L.D.S. Medical Superintendent, A. W. Russell, M.A., M.B., C.M. Lady Superintendent, Miss E. Clyde. Secretary, Henry Johnston, 125 Buchanan Street. The hour of visit is 9 A.M. Operating days, Wednesday and Saturday. The Dispensary for out-patients is open daily at 2 P.M.

LOCK HOSPITAL, 41 Rottenrow Street. 80 Beds. Medical Officers, Drs James Dunlop and A. Patterson. Superintendent, P. Condra. Treasurer, T. D. Findlay. Secretary, Robert Young.

MATERNITY HOSPITAL. 36 Beds; in-patients, 367; out-patients, 1639. Consulting Surgeon, Dr George Buchanan. Senior Consulting Physician, Professor Leishman. Consulting Physician, Dr Samuel Sloan. Obstetric Physicians, Drs Murdoch Cameron and W. L. Reid. Assistant Obstetric Physicians, Drs Archibald Sloan and E. H. Lawrence Oliphant. Pathologists, Drs David Newman and T. K. Dalziel. Out-door Physicians, Drs J. Dunlop, T. F. Gilmour, Malcolm Black, John Ritchie, Alexander Jamieson, and W. Wallace Anderson.

GLASGOW ROYAL ASYLUM, GARTNAVEL. About 500 patients of all classes. Physician-Superintendent, Dr David Yellowlees. Lectures on Mental Diseases during Summer, at the University and the Asylum.

EYE INFIRMARY. 95 Beds (1154 house patients), 14,730 patients in all annually. Senior Surgeon, Thomas Reid, M.D. Surgeons, Thomas S. Meighan, M.D., Henry E. Clark, M.R.C.S., and J. Crawford Renton, M.D. Assistant Surgeons, D. N. Knox, M.A., M.B., A. Freeland Fergus, M.B., and A. Maitland Ramsay, M.B. House Surgeon, Andrew Wilson, M.B., C.M. Consulting Surgeon, George Buchanan, M.D. Secretary, William George Black.

DISPENSARY FOR SKIN DISEASES, 8 Elmbank Street. Physician, Professor McCall Anderson. Open Mondays and Thursdays at 4 P.M., for out-door patients. This Institution is in connexion with the Wards for Skin Diseases in the Western Infirmary, to which the more important cases are sent.

OPHTHALMIC INSTITUTION, 126 West Regent Street. Consulting Physician, Dr S. J. Moore. Acting Surgeon, Dr J. R. Wolfe. Acting Physician, Dr J. S. Cumming. Assistant Surgeons, Dr J. McGregor Robertson and Dr A. T.

Thomson. Secretary, Henry Johnston, 125 Buchanan Street. Open daily from 1 to 3 P.M. A Course of Lectures and Clinical Instruction during the Winter and Summer Sessions.

GLASGOW HOSPITAL AND DISPENSARY FOR DISEASES OF THE EAR, 28 Elmbank Crescent. 12 Beds. Hour of visit to the Hospital, 2 P.M. Out-patients seen at 2 P.M. on Mondays, Tuesdays, Wednesday, Thursdays, Fridays, and Saturdays. Number of cases treated annually, 3600. During the Winter and Summer Sessions a Course of Practical Instruction in the Treatment of Ear Disease is given to the Students attending the Clinique. Senior Consulting Physician, Prof. W. T. Gairdner. Senior Consulting Surgeon, Dr James Morton. Pathologist, Dr Joseph Coats. Consulting Ophthalmic Surgeon, Dr Thomas Reid. Consulting Throat Surgeon, Dr Arthur Mehan. Consulting Dental Surgeon, Dr J. C. Woodburn. Physicians, Drs A. K. Irvine, A. L. Kelly, and J. Gardiner. Dental Surgeon, Mr Rees Price. Surgeon and Lecturer, Dr Thomas Barr. Secretary, Adam Sutherland, 75 West Nile Street.

ABERDEEN.

ROYAL INFIRMARY. Upwards of 200 Beds. Visits daily, Physicians at 11.30, and Surgeons at 12 o'clock. Physicians, Drs Smith-Shand, Fraser, P. Blaikie Smith, and Rodger. Surgeons, Drs A. Ogston, Will, Garden, and Hall. Ophthalmic Surgeon, Dr Davidson. Pathologist, Professor Hamilton. Chloroformist, Dr Mackenzie Booth. Dental Surgeon, Dr Williamson. Honorary Superintendent, Miss Rachel Frances Lumsden. Treasurer, William Carnie.

GENERAL DISPENSARY, LYING-IN AND VACCINE INSTITUTION. 11,240 patients annually. Open daily at 10 o'clock A.M. except Sundays. Medical Attendants and Vaccinators, Drs Booth, Watt, Ruxton, Gordon, Edmond, and Gibson. Surgeon Dentist, W. P. Robertson. Secretary, John P. Cumine.

CHILDREN'S HOSPITAL. Physicians, Drs Stephenson and Garden. Junior Physicians, Drs Macgregor and Gordon. Clinical Instruction daily at 11 o'clock.

LUNATIC ASYLUM. Above 580 patients. Medical Superintendent, Dr Reid. Consulting Physician, Dr Jamieson. Treasurer, William Carnie.

EYE INSTITUTION, General Dispensary Buildings, Guestrow. Oculist, Dr M'Kenzie Davidson. Open three days in the week at 2.30 P.M. Clinical Instruction on Diseases of the Eye and the use of the Ophthalmoscope. Average, 600 patients annually.

ARMY MEDICAL DEPARTMENT.

WAR OFFICE, LONDON.

SCHEDULE OF QUALIFICATIONS NECESSARY FOR CANDIDATES DESIROUS OF OBTAINING COMMISSIONS IN THE ARMY MEDICAL STAFF, WITH THE CONDITIONS OF SERVICE.

1. Every candidate for a commission in the Army Medical Staff must be 21 years and not over 28 years of age at the date of commencement of the competitive examination. He must produce an extract from the register of his birth, or, in default, a declaration, made before a magistrate by one of his parents or guardians, giving his exact age. He must also produce a recommendation from some person of standing in society—not a member of his own family—to the effect that he is of regular and steady habits, and likely in every respect to prove creditable to the Department if a commission be granted; and a certificate of moral character from the parochial clergyman, if possible.

2. The candidate must sign a declaration upon honour that both his parents are of unmixed European blood, and that he labours under no mental or

constitutional disease, or hereditary tendency thereto, nor any imperfection or disability that can interfere with the efficient discharge of the duties of a medical officer in any climate: also that he does not hold, and has never held, any commission or appointment in the public services. His physical fitness will be determined by a Board of Medical Officers, who are required to certify that his vision is sufficiently good to enable him to perform any surgical operation without the aid of glasses. A moderate degree of myopia will not be considered a disqualification, provided it does not necessitate the use of glasses during the performance of operations, and that no organic disease of the eyes exists. The Board must also certify that he is free from organic or other disease, and from constitutional weakness, or other disability of any kind likely to unfit him for military service in any climate.

3. Certificates of age, registration of diplomas, etc., and of character, must accompany the declaration when signed and returned.

4. Candidates will be examined by the Examining Board in the following compulsory subjects, and the highest number of marks attainable will be distributed as follows:—*a.* Anatomy and Physiology, 1000; *b.* Surgery, 1000; *c.* Medicine, including Therapeutics and the Diseases of Women and Children, 1000; *d.* Chemistry and Pharmacy, and a practical knowledge of drugs, 1000. [*N.B.*—The examination in Medicine and Surgery will be in part practical, and will include operations on the dead body, the application of surgical apparatus, and the examination of Medical and Surgical patients at the bedside. The examination in Chemistry will be limited to the elements of the science, and to its application to medicine, pharmacy, and practical hygiene.] No candidate shall be considered eligible for the Army Medical Staff who shall not have obtained at least *one-third* of the marks obtainable in each of the above compulsory subjects.

5. Voluntary subjects for examination. Candidates may be examined in the following voluntary subjects, for which the maximum number of marks obtainable will be—French and German (150 each), 300; Natural Sciences, 300. A number less than one-third of the marks obtainable in each of these voluntary subjects will not be allowed to count in favour of the candidate who has qualified in the compulsory subjects. The knowledge of Modern Languages being considered of great importance, all intending competitors are urged to qualify in French and German. The Natural Sciences will include Comparative Anatomy, Zoology, Natural Philosophy, Physical Geography, and Botany, with special reference to *Materia Medica*.

6. The appointments announced for competition will be filled up from the list of qualified candidates arranged in the order of merit, as finally determined by the total number of marks each has obtained in both the compulsory and voluntary subjects.

7. After passing this examination, every successful candidate will be required to attend one course of practical instruction at the Army Medical School as a Surgeon on probation on—(1) Hygiene; (2) Clinical and Military Medicine; (3) Clinical and Military Surgery; (4) Pathology of Diseases and Injuries incident to Military Service.

8. All Surgeons on probation will be required to conform to such rules of discipline as the Senate may from time to time enact, and provide themselves with uniform, viz., the regulation undress and mess uniform of a surgeon, but without sword.

9. They will be required to attend the Medical Staff Mess at Netley, and to conform to the Rules and Regulations thereof.

APPOINTMENT.

Every candidate for appointment to the Medical ranks of the Army Medical Staff must possess two diplomas or licenses, recognised by the General Medical Council, one to practise Medicine, and the other Surgery, and must be registered under the Medical Act in force in the United Kingdom at the time of his appointment.

A public and open competition will be held twice in the year for the admission of qualified candidates as probationers. The number of appointments so competed for will be not less than half of the number of vacancies which shall have arisen in the last completed half-year ending on the 30th June or 31st December. It will be competent for the Secretary of State for War to fill up the remaining number from such qualified candidates as may be proposed by the governing bodies of Public Schools of Medicine in the United Kingdom or in the Colonies as he may think proper. Every candidate so proposed must be certified by the governing body proposing him to be duly qualified according to a standard laid down by the Secretary of State, and shall be approved by the Director-General.

The Secretary of State for War will from time to time fix the order of precedence and the proportion in which the several Schools of Medicine shall be offered the nomination of candidates.

A Surgeon on probation, on being so nominated, will be sent to some large station for instruction in Ambulance and Medical Staff Corps duties, until the commencement of the next course of study at the Army Medical School, when he will go through such course as the Secretary of State shall decide. After passing a qualifying examination in the military medical subjects taught there, and satisfying the Director-General that he is a person of proper skill, knowledge, and character, for permanent appointment in the Army Medical Staff, the Surgeon on probation will be commissioned as Surgeon.

The Surgeons on probation who pass out of the Army Medical School at one qualifying examination will take precedence among each other as Surgeons, as follows:—(a.) Those appointed on nomination according to their date of joining on probation. (b.) Those appointed by competition according to the last day of the competitive examination, and in the order of merit, as determined by the combined results of the competitive and qualifying examinations, with priority over any joining under paragraph (a) on the last day of the competitive examination.

A Surgeon's commission will bear the date of the day of his passing out of the Army Medical School.

RANK AND PAY.

The ranks and daily rates of pay of the officers of the Army Medical Staff are as follows:—Surgeon-General £2, 15s.; Deputy Surgeon-General, £2; Brigade Surgeon, £1, 10s., after five years in the rank, £1, 13s.; Surgeon-Major, £1, after fifteen years' service £1, 2s. 6d., after twenty years' service £1, 5s., after twenty-five years' service £1, 7s. 6d.; Surgeon, £200 a year, after five years' service £250, after ten years' service 15s. daily. Surgeon on probation 8s. Charge pay: the principal medical officer of an army in the field, consisting of 10,000 men and upwards, £1 daily; of 5000 men and upwards, 15s. daily; of less than 5000, 10s. daily. The principal medical officer of a command abroad where the number of commissioned officers and enlisted men is 1500 and upwards, 5s. daily.

The pay of medical officers is issued monthly in arrear.

The relative rank of officers of the Army Medical Staff is as follows:—I. A Director-General and Surgeon-General rank as Major-General. II. A Deputy Surgeon-General ranks as Colonel. III. A Brigade Surgeon ranks as Lieutenant-Colonel. IV. A Surgeon-Major ranks as Major; after twenty years' service as Surgeon-Major he ranks as Lieutenant-Colonel. V. A Surgeon ranks as Captain. VI. A Surgeon on probation ranks as Lieutenant.

ARMY MEDICAL SCHOOL.

ROYAL VICTORIA HOSPITAL, NETLEY.

President of the Senate.—Sir Thomas Crawford, M.D., K.C.B., Director-General of the Army Medical Department.

Members of the Senate.—Sir J. Fayrer, M.D., K.C.S.I., F.R.S., Physician to the Council of India; Surgeon-General Sir T. Longmore, C.B., Professor of Military Surgery; Dep. Surgeon-General David B. Smith, M.D., F.R.C.P., Professor of Military Medicine; Sir William Aitken, M.D., F.R.S., Professor of Pathology; J. Lane Nottter, M.D., Surgeon-Major, Professor of Military Hygiene; The Principal Medical Officer, Royal Victoria Hospital, Netley.

Assistant Professors.—Brigade-Surgeon C. H. Y. Godwin, Surgeon-Major J. F. Beattie, M.D.; Surgeons A. M. Davies and H. S. M'Gill.

Candidates for Commissions in the Army, and in the Queen's Indian Service, proceed to Netley after passing the Examination at London. At Netley they attend the Medical and Surgical Practice of the Royal Victoria Hospital, and learn the system and arrangements of Military Hospitals. During four months they attend the lectures given by the Professors and Assistant-Professors, and go through a course of practical instruction in the Hygienic and Pathological Laboratories. The lectures and practical instruction are intended to explain the specialities of Military Medical Practice, attention being directed to gunshot and other wounds, surgical arrangements in the field during action and sieges, means of transport, field hospitals, tropical diseases and their means of investigation, service in India and in the various colonies, the sanitary arrangements in peace and war, and the means of carrying out the sanitary regulations. Every opportunity is taken of practising operations on the dead body, and practical points of a like kind.

INDIAN MEDICAL SERVICE.

REGULATIONS FOR THE EXAMINATION OF CANDIDATES FOR THE APPOINTMENT OF SURGEON IN HER MAJESTY'S INDIAN MEDICAL SERVICE.

(Subject to any alteration that may be determined on).

1. *Limits of Age.*—All natural-born subjects of Her Majesty, between 21 and 28 years of age at the date of the examination, and of sound bodily health, may be candidates. They may be married or unmarried. They must possess a Diploma in Surgery, or a license to practise it, as well as a Degree in Medicine, or a license to practise it in Great Britain or Ireland.

2. *Declaration to be submitted.*—They must subscribe and send in to the Military Secretary, India Office, Westminster, *so as to reach that address at least a fortnight before the date fixed for the Examination*, a declaration according to a prescribed form.

3. This declaration must be accompanied by the following documents:—

a. *Proof of age*, either by Registrar General's certificate, or, where such certificate is unattainable, by the candidate's own statutory declaration, form of which can be obtained at the India Office, supported, if required by the Secretary of State, by such evidence as he may consider satisfactory. A certificate of baptism which does not afford proof of age will be useless.

b. A recommendation from some person of standing in society—not a member of his own family—to the effect that he is of regular and steady habits, and likely in every respect to prove creditable to the service if admitted; and a certificate of moral character from a magistrate, or a minister of the religious denomination to which the candidate belongs.

c. *A certificate of registration*, in accordance with the Medical Act of 1858, of the degrees, diplomas, and licenses possessed by the candidate.

4. *Physical Examination.*—The physical fitness of each candidate will be determined previous to examination by a Board of Medical Officers, who are required to certify that his vision is sufficiently good to enable him to perform any surgical operation without the aid of glasses. A moderate degree of myopia will not be considered a disqualification, provided it does not necessitate the use of glasses during the performance of operations, and that no organic disease of the eyes exists.

Every candidate must also be free from all other organic disease and from constitutional weakness, or other disability likely to unfit him for military service in India.

5. *Subjects for Examination.*—On producing the foregoing qualifications, the candidate will be examined by the Examining Board in the following compulsory subjects, and the highest number of marks attainable will be distributed as follows :—

	Marks.
a. Anatomy and Physiology,	1000
b. Surgery,	1000
c. Medicine, including Therapeutics, the Diseases of Women and Children,	1000
d. Chemistry and Pharmacy, and a practical knowledge of Drugs,	1000

(The examination in Medicine and Surgery will be in part practical, and will include operations on the dead body, the application of surgical apparatus, and the examination of medical and surgical patients at the bedside.)

The examination in Chemistry will be limited to the elements of the science, and to its application to medicine, pharmacy, and practical hygiene.

No candidate shall be considered eligible who shall not have obtained at least *one-third* of the marks obtainable in each of the above *compulsory subjects*.

6. *Voluntary Subjects.*—Candidates may be examined in the following voluntary subjects, for which the maximum number of marks obtainable will be :—

	Marks.
French, German, and Hindustani (150 each),	450
Natural Sciences,	300

The Natural Sciences will include Comparative Anatomy, Zoology, Natural Philosophy, Physical Geography, and Botany, with special reference to *Materia Medica*.

A number less than *one-third* of the marks obtainable in any of these *voluntary subjects* will not be allowed to count in favour of a candidate who has qualified in the *compulsory subjects*.

The knowledge of modern languages being considered of great importance, all intending competitors are urged to qualify in French and German.

7. The appointments announced for competition will be filled up from the list of qualified candidates arranged in order of merit, as finally determined by the total number of marks each has obtained in both the compulsory and voluntary subjects.

The Examiners in London will prepare a list in order of merit, with the marks affixed in the different subjects, to be transmitted to the Director-General and communicated to the Professors of the Army Medical School. If any candidate is found to be deficient in any particular subject, this shall be stated, in order that he may receive special instruction on the point at Netley.

8. *Course at Netley.*—After passing this examination the successful candidates will be required to attend one entire course of practical instruction at the Army Medical School, as Surgeons on probation, in—

- (1.) Hygiene.
- (2.) Clinical and Military Medicine.
- (3.) Clinical and Military Surgery.
- (4.) Pathology of Diseases and Injuries incident to Military Service.

These courses are to be of not less than four months' duration; but candidates who have already gone through a course at Netley as candidates for the Army or Navy Medical Service may, if thought desirable, be exempted from attending the School a second time.

9. *Pay and Uniform while at Netley.*—During the period of residence at the Army Medical School, each candidate will receive an allowance of 8s. per diem with quarters, or, when quarters are not provided, with the usual lodging and fuel and light allowances of a subaltern, to cover all costs of

maintenance; and he will be required to provide himself with uniform (viz., the regulation undress uniform of a Surgeon of the British Service, but without the sword).

10. All candidates will be required to conform to such rules of discipline as the Senate may from time to time enact.

11. *Examination at Netley.*—At the conclusion of the course, candidates will be required to pass an examination on the subjects taught in the School. The examination will be conducted by the Professors of the School.

The Director-General, or any Medical Officer deputed by him, may be present and take part in the examination. If the candidate give satisfactory evidence of being qualified for the practical duties of an Army Medical Officer, he will be eligible for a Commission as Surgeon.

12. *Position on List of Surgeons, how determined.*—The position of the candidates on the list of Surgeons will be determined by the combined results of the preliminary and of the final examinations, and, so far as the requirements of the service will permit, they will have the choice of Presidency in India according to their position in that list.

MEMORANDUM REGARDING THE PAY, ETC., OF MEDICAL OFFICERS
APPOINTED TO HER MAJESTY'S INDIAN FORCES.

Passage to India.—Surgeons on appointment will, if possible, be provided with passage to India by troop-ship; but when troop-ship accommodation is not available, passage at the public expense will be provided by steamer, or a passage allowance will be granted, if preferred. A charge for messing during the voyage will be made at the rate of 2s. a day. This payment will not include the cost of liquors, which will be charged for as extras.

Pay previous to Embarkation.—The rate of pay drawn by Surgeons from the date of passing the final examination at the Army Medical School until arrival in India will be 10s. a day.

Pay at the above rate will be issued in this country up to the date of embarkation, and an advance of two months' pay at the same rate will also be made prior to embarkation.

Pay and Allowances when in India.—Officers appointed to the Indian Medical Service will receive pay in India according to the following scale when not holding an appointment carrying higher pay:—

Rank.	Years' Service.	Pay and Allowances per Mensem.		
		R.	A.	P.
Brigade Surgeon and } Surgeon-Major. }	25	888	12	0
" . . .	20	852	3	7
" . . .	15	677	6	11
" . . .	12	640	14	6
Surgeon . . .	10	451	14	5*
" . . .	6	433	10	2*
" . . .	5	335	12	2*
" . . .	under 5	317	8	0*

On first appointment they will only come into receipt of these allowances from the date of their arrival in India.

The monthly salaries of officers holding the principal administrative appointments and substantive military charges of the Indian Medical Service receive, at present, the following consolidated salaries:—Surgeon-General, Bengal, Rs. 2700; Madras, Rs. 2500; Bombay, Rs. 2500; Deputy Surgeon-General, from Rs. 2250 to Rs. 1800; Brigade Surgeon or Surgeon-Major, of

* When not receiving any staff allowance.

twenty years' service and upwards, in substantive charge of a Native regiment, Rs. 1000, with Rs. 90 horse allowance in Cavalry regiments; Brigade Surgeon or Surgeon-Major in substantive charge of a Native regiment, Rs. 800, with Rs. 90 horse allowance in Cavalry regiments; Surgeon, above five years' full-pay service, in substantive charge of a Native regiment, Rs. 600, with Rs. 60 horse allowance in Cavalry regiments; Surgeon, under five years' full-pay service, in substantive charge of a Native regiment, Rs. 450, with Rs. 60 horse allowance in Cavalry regiments. The salaries of other substantive medical appointments in the Civil and Military Departments are consolidated, and vary from Rs. 1800 to Rs. 400 per mensem. Qualified officers of the Medical Service are also eligible for appointments in the Assay Department. The salaries of these appointments are from Rs. 600 to Rs. 2250 per mensem. Medical officers are required to perform two years' regimental duty in India before they can be considered eligible for civil employment.

Retiring Pensions and Half-Pay.—Officers of the Indian Medical Service will be allowed to retire on the following scale of pension, on completion of the required periods of service :—After thirty years' service for pension, £700; after twenty-five years' service for pension, £500; after twenty years' service for pension, £365; after seventeen years' service for pension, £292. A Surgeon-General, after five years' active employment in India in that grade, will be entitled to retire upon a pension of £350 per annum, in addition to that to which he may be entitled under the above scale. A Deputy Surgeon-General will, after five years' active employment in India in that grade, be entitled to retire upon a pension of £250 per annum, in addition to the pension to which he may be entitled under the above scale.

With a view to maintain the efficiency of the service, all medical officers of the rank of Brigade Surgeon and Surgeon-Major shall be placed on the Retired List when they shall have attained the age of fifty-five years, and all Surgeons-General and Deputy Surgeons-General when they shall have attained the age of sixty years. In any special case, where it would appear to be for the good of the service that the officer should continue in employment, he may be so continued, subject in each case to the sanction of the Secretary of State for India in Council.

The widows and families of medical officers are also entitled to pensions from the Indian Service Family Pension Fund, to which all Surgeons must, as a condition of their appointment, subscribe from the date of their arrival in India.

NAVY MEDICAL DEPARTMENT.

Admiralty, Northumberland Avenue, London, W.C.

REGULATIONS FOR ENTRY OF CANDIDATES FOR COMMISSIONS IN THE MEDICAL DEPARTMENT OF THE ROYAL NAVY.

1. Every candidate for admission into the Medical Department of the Royal Navy must be not under 21 nor over 28 years of age on the day of the commencement of the competitive examination. He must produce an extract from the register of the date of his birth; or, in default, a declaration made before a magistrate, from one of his parents or other near relative, stating the date of birth. He must also produce a certificate of moral character, and a recommendation signed by a clergyman or magistrate to whom he has been for some years personally known, or by the president or senior professor of the college at which he was educated.

2. He must be registered, under the Medical Act in force, as possessing two diplomas or licenses recognised by the General Council, one to practise medicine and the other surgery in Great Britain and Ireland.

3. He must sign a declaration that he is a British subject, the son of parents of unmixed European blood; that he labours under no mental or constitutional disease or weakness, or any other imperfection or disability which may interfere with the most efficient discharge of the duties of a medical officer in any

climate; and that he does not hold, and has never held any commission or appointment in the public services.

He must also declare his readiness to engage for general service at home or abroad as required.

He must be free from organic or other disease, and his physical fitness will be determined by a board of medical officers, who are to certify that his vision comes up to the required standard, which will be ascertained by the use of Snellen's test types.

The certificates of registration, character, and birth must accompany the declaration, which is to be filled up and returned as soon as possible, addressed as above.

4. Candidates will be examined by the Examining Board in the following compulsory subjects, and the highest number of marks attainable will be distributed as follows:—Anatomy and Physiology (1000 marks); Surgery (1000 marks); Medicine, including Therapeutics and the Diseases of Women and Children (1000 marks); Chemistry and Pharmacy, and a practical knowledge of Drugs (1000 marks). (The examination in Medicine and Surgery will be in part practical, and will include operations on the dead body, the application of Surgical Apparatus, and the examination of Medical and Surgical patients at the bedside. The examination in Chemistry will be limited to the elements of the Science, and to its application to Medicine, Pharmacy, and practical Hygiene).

No candidate shall be considered eligible who shall not have obtained at least *one-third* of the marks obtainable in each of the above *compulsory subjects*.

5. Candidates may be examined in the following voluntary subjects, for which the maximum number of marks obtainable will be:—French and German (150 each), 300 marks; Natural Sciences, 300 marks. A number less than one-third of the marks obtainable in each of these *voluntary subjects* will not be allowed to count in favour of the candidate who has qualified in the *compulsory subjects*.

The knowledge of modern languages being considered of great importance, all intending competitors are urged to qualify in French and German.

The Natural Sciences will include Comparative Anatomy, Zoology, Natural Philosophy, Physical Geography, and Botany, with special reference to *Materia Medica*.

6. The appointments announced for competition will be filled up from the list of qualified candidates arranged in the order of merit as finally determined by the total number of marks each has obtained in both the compulsory and voluntary subjects.

7. Successful candidates, immediately after passing the examination, will receive Commissions as Surgeons in the Royal Navy, and will undergo a course of practical instruction in Naval Hygiene, etc., at Haslar Hospital.

The full and half-pay per day of Naval Medical Officers is in accordance with the following scale:—**FULL-PAY:** Surgeon—On entry, 11s. 6d.; after 4 years' full-pay service, 13s. 6d.; after 8 ditto, 15s. 6d. Staff Surgeon—On promotion, £1, 1s.; after 4 years' full-pay service in rank, £1, 4s. Fleet Surgeon—On promotion, £1, 7s.; after 4 years' full-pay service in rank, £1, 10s.; after 8 ditto, £1, 13s. Deputy Inspector General, £2, 2s. Inspector General, £2, 15s. On first appointment to the service, medical officers will receive full pay from date of appointment, but subject to the provisions of Art. 1255, clause 2, of the Queen's Regulations, 1879. **HALF-PAY:** Surgeon—Under 2 years' full-pay service, 6s.; after 2 years' full-pay service, 7s.; after 4 ditto, 8s.; after 6 ditto, 9s.; after 8 ditto, 10s.; after 10 ditto, 11s. Staff Surgeon—On promotion, 12s.; after two years' full-pay service in rank, 13s.; after 4 ditto, 14s.; after 6 ditto, 15s. Fleet Surgeon—On promotion, 17s.; after two years' full-pay service in rank, 18s.; after 4 ditto, 19s.; after 6 ditto, £1. Deputy Inspector General—On promotion, £1, 5s.; after 2 years' full-pay service in rank, £1, 7s.; after 4 ditto, £1, 9s. Inspector General, £1, 18s.

The following is a copy of the Papers set for the examination of Candidates for Her Majesty's Army, Indian, and Naval Medical Services, August 1888:—

ANATOMY AND PHYSIOLOGY.

1. Describe the frontal bone, giving an account of its connexion with other bones, the parts of importance which are in relation to or connected with it, its structure and development.

2. Describe the origin, course, anatomical relations, and distribution of the internal iliac artery, and of its principal branches.

3. Describe the structure, anatomical relations, and functions of the retina.

4. Describe the origin and distribution of the fifth nerve within the cranium; trace the distribution of the inferior maxillary division, and give an account of its functions.

5. Describe the parts and the order in which they are met with in a dissection of the popliteal space.

SURGERY.

1. Describe the condition known as syphilitic keratitis (hereditary), the peculiarities usually observed in a patient so affected, and the treatment to be pursued in such a case.

2. Describe the conditions observed in acute inflammation of the knee-joint, the changes which take place in the course of the attack, and the treatment in its various stages.

3. A young man was violently pushed down, and fell on his back on the pavement. He did not experience any pain after the accident, and was able to walk home with perfect ease. A few months subsequent, he began to feel weakness in his legs, and this gradually increased until he was barely able to raise himself from the sitting posture, and, when upright, had difficulty in standing or walking. There was slight dull pain in the lumbar region, and increased discomfort on stooping forward, but no restriction in the movements of the vertebræ. There was not any loss of sensation. What was the most probable cause of this paralysed condition, and what treatment should be adopted under such circumstances? It may be concluded that the patient recovered under treatment.

4. Describe the symptoms of fracture of the neck of the femur (1) when within the capsule, (2) when external to the capsule, and the treatment in each condition.

5. By what symptoms would a surgeon be able to diagnose rupture of the bladder within the abdomen into the cavity of the peritoneum? Describe the treatment to be adopted in such an injury.

6. What are the pathological conditions which give rise to (1) senile gangrene, (2) traumatic gangrene; and what treatment should be adopted in each condition?

NATURAL SCIENCE.

ZOOLOGY.

1. What are the more important characters by which amphioxus differs from a typical vertebrate?

2. Refer the Barnacle (*Lepas*) to its proper class in the animal kingdom, and state your reason for so referring it.

3. Refer to its proper sub-kingdom and class an animal with the following characters:—

Body protoplasmic, without differentiated organs or cellular tissues, without an enveloping membrane, and having the power of emitting extensile and retractile prolongations of its protoplasm.

BOTANY.

4. Distinguish among the following Genera those in which the ovary is

coherent with the calyx ("ovary inferior") from those in which the ovary is free ("ovary superior") :—

Ribes, Malva, Digitalis, Cucumis, Papaver, Conium.

5. Mention one or more instances of the occurrence of vibratile cilia in the vegetable kingdom.

6. Refer to its Natural Order a plant with the following characters, and cite one or more examples :—

Corolla monopetalous, 5-lobed, regular. Stamens inserted on its tube and alternate with its lobes. Ovary free, 1-celled, with two parietal placenta. Seeds with fleshy albumen. Leaves opposite.

PHYSICS.

7. At what temperature does water attain its maximum density ?

8. What is the equatorial current of the ocean ? Mention its direction. To what cause may it be attributed ?

9. A solid body weighs in vacuo 100 grammes, while in water at 40° Centigrade it weighs 80 grammes. What is its specific gravity ?

CHEMISTRY.

1. When a mixture (in any proportion) of oxygen and hydrogen is exploded a certain volume of the mixed gases disappears. What were the relative volumes of oxygen and hydrogen in the portion which had thus disappeared ?

2. Write down in the form of an equation the reaction which takes place on passing steam over pieces of iron heated to redness in a tube.

3. When a piece of filter-paper, on which warm oil of turpentine has been poured, is plunged into chlorine it bursts into flame, with the formation of a dense cloud of black smoke. Explain this phenomenon.

MEDICINE.

1. A ship's captain, aged 45, was admitted to hospital on 23rd August 1887, suffering from dyspnoea and dysphonia of about eight months' duration. He had always been an exceptionally healthy man, never having had any severe illness before ; also, he had always been temperate, and never had any form of venereal disease.

In January 1887 he was shipwrecked off the coast of Ireland, and caught, at that time, a severe cold, which continued till two months ago ; but during this time he had neither difficulty of breathing nor pains in the chest. About two months ago the dyspnoea and dysphonia complained of commenced. These symptoms set in suddenly (within 24 hours), and have been steadily getting worse. The power of phonation has never completely disappeared ; but the degree of dysphonia varies very considerably at different times. The dyspnoea is very markedly exaggerated on any exertion ; but when he is absolutely at rest, both the dyspnoea and the dysphonia are much alleviated. No pain is complained of in any part, but a peculiar sense of constriction in the throat is experienced on exertion. When lying at rest he feels the mucus collecting in his throat, and the attempts to expectorate excite the cough. There is no pain or difficulty in swallowing. The chest is well formed, and there are no bulgings or pulsations. The breathing is equal on both sides, and there is no absolute dullness ; the only suspicion of impaired resonance being found at the top of the sternum towards the left side. There is no episternal pulsation. The cardiac dullness is, perhaps, slightly increased, and the sounds, though slightly irregular, are normal. The pulses are equal at the wrists, and the vessels generally are not atheromatous. The pupils are equal.

On examination of the larynx no obstruction of the glottis is seen. The arytenoids are pale pink in colour, and of normal size ; that of the left side is somewhat enlarged. The left vocal cord is midway between the position of

adduction and abduction, and on attempted phonation is quite fixed and immovable. The right cord moves normally.

Three days after admission pain and uneasiness in swallowing are complained of for the first time.

29th August.—A careful physical examination was made with the following result:—An area of slightly impaired percussion was detected on the left side posteriorly close to the spine, and at the level of the fourth, fifth, and sixth dorsal vertebræ. The respiratory murmur was fainter over the upper lobe of the left lung than on the right side. The dulness in front, over, and to the left of the *manubrium sterni* was quite distinct. On auscultating over the œsophagus no delay in deglutition could be made out. The urine was found to be normal.

7th September.—Up till last night patient has remained in much the same condition as on admission; but about 2 A.M. he began to complain of an increased sense of stuffing in the chest, with inability to get up the mucus. This feeling was relieved by the use of the inhaler, and up till 4 P.M. he expectorated fully a pint of muco-purulent material. At this hour the sense of suffocation again supervened, and he has scarcely expectorated anything since. All the time the breathing has been exceedingly laboured and difficult, and at 9.45 A.M. dyspnœa of a very severe type had set in, all the accessory muscles of respiration being vigorously called into play. The respirations numbered 24 in the minute, inspiration being pretty free and unaccompanied by much noise, but the expiration is prolonged, laboured, and noisy. Voice is almost completely gone; the lips are slightly livid; and the face is pale and bedewed with an abundant clammy sweat. The respiratory murmur over the whole left front is very feeble and distinct; over the right front it is loud, harsh, and full. The pulse numbers 120, and is weak and intermitting.

10th September.—After the last report on the 7th instant the patient lapsed into his usual state of chronic dyspnœa, but manifestly worse than before, and with greatly reduced strength. Expiration is still the most laboured part of the respiratory cycle; there is great difficulty in expectoration; and the pulse is very feeble and intermitting. Very distinct difficulty in swallowing was again experienced yesterday. The respiratory murmur is almost entirely abolished over the whole of the left lung in front, where also there is great deficiency of resonance on percussion, and the dulness over the *manubrium sterni* is well marked.

11th September.—The patient died this morning during an attack of extreme dyspnœa.

Discuss the pathology of this case. Explain the indirect or pressure symptoms on anatomical and physiological grounds, and the diagnosis to which they point.

2. Describe the condition of the urine usually found in a case of (a) acute nephritis; (b) chronic nephritis in a gouty patient. What are the chief complications to be feared in each of these cases; and, finally, describe the appropriate treatment and general management of the cases and complications.

3. What are the symptoms of venous congestion of the liver? Under what circumstances is it brought about, and what are the changes in the liver as the venous congestion becomes more and more extreme?

4. Enumerate the causes of post-partum hæmorrhage. Give the differential diagnosis of its different forms, and describe the treatment.

5. Discuss the causation of the dyspnœa of asthma and bronchitis, and mention the drugs, their doses, and mode of administration, which most of all tend to the relief of such dyspnœa.

Part Fourth.

PERISCOPE.

MEDICAL PERISCOPE.

By FRANCIS TROUP, M.D.

Berlin. Klin. Wochenschrift, No. 29, 1888.—Dr Lorenz praises highly the use of ichthyol (the sulpho-ichthyolate of ammonium, sodium, or lithium is understood) internally, and outwardly friction with an ointment made with it and lanolin. He has found the greatest benefit from it in rheumatism and arthritis deformans; and in one case of chronic nephritis (a man of 48 years, who was hopelessly ill), after three months' treatment, in which about 100 grammes of the soda ichthyolate were used, no trace of albumen was to be found in the urine; and the patient, who at the beginning of the medication could not walk without tottering, now walks in the wettest of weather two miles to the doctor to obtain the pills which have worked such wonders.

Dr Geo. Meyer in the same number gives his experience of the drug, which is certainly not so rosy (*and entirely corresponds with the results of trials made in the Incurable Hospital here*). Dr Meyer says that three of his patients (they were sixteen in all) complained of a feeling of great weariness after use of the medication. Four suffered from nausea, vomiting, and a feeling of scraping and burning in the throat, as well as unbearable eructations, with the evil taste of the ichthyol. The drug could only be taken a very short time, and Meyer failed to observe any one becoming inured to it, as Lorenz states his patients did. Indeed, his observations are directly contradictory of the experiences of other observers, who found patients to take it willingly for months. As Meyer remarks, this is curious, for no one will assert that old hospital patients of the female sex are possessed usually of pampered tastes.

In fourteen of the sixteen cases no result, good or bad, seemed to follow its use. This is not an encouraging report. If one thinks also that the bad taste and smell, for which corrigentia are difficult to find, of ichthyol preparations, and the circumstance that disturbances of stomach and digestive apparatus are frequently caused, the introduction of this substance into medicine has been attended with too enthusiastic praises, at least in the treatment of chronic rheumatic conditions. Meyer also doubts whether v. Nussbaum is right in thinking that ichthyol will be beneficial in all affections connected with hyperæmia and dilatation of capillaries. In one of the sixteen cases only the operation of ichthyol seemed beneficial; but why its results were so éclatant in this one woman Meyer cannot pretend to explain.

Ibidem, Nos. 30 and 31.—Oberländer of Dresden writes on the ætiology and treatment of enuresis nocturna in boys. He circumcises and separates adhesions between glans and prepuce where necessary, and stretches the posterior part of the urethra with an instrument figured in the article. A few cases of its successful use are related.

Ibidem, No. 31.—Dr J. Boas of Berlin details a case of rumination. Unlike Dr Alt's patient (noticed in *Periscope* of September), the contents of this man's stomach when examined were found to be sub- instead of hyper-acid, and treatment with muriatic acid instead of alkalies relieved the regurgitation so much that the patient was practically cured.

Ibidem.—Dr O. Minkowski of the clinique of Strassburg contributes a paper on the diagnosis of abdominal tumours. He finds an important and decisive process to be the observation of the alteration of position which tumours assume when at one time the stomach is inflated with carbonic acid and at another the colon is distended with water. He lays down the following propositions:—

1. Liver tumours move upwards and to the right by gaseous distention of the stomach. Only when the enlargement of the liver is very great, and the liver itself stretches far into the left hypochondrium, will the movement to the right not take place. Frequently after distention the anterior border of the liver is much more easily felt.

By distending the large gut with water, the under border of the liver moves simply upwards. Very seldom is any displacement to the right noticeable; occasionally even the tumour may seem to pass a little to the left, because great distention of the right flexure of the colon presses the right lobe of the liver upwards and forwards. The under border of the liver is usually more easily felt if the colon is not too much distended. In one case seemingly the liver-border became deeper in place, but more close examination disclosed the fact that an uneven tumour placed on the surface of the liver had simulated the liver border, and that only after distention the real liver edge became accessible to palpation.

In very large massive tumours of the liver which fill up a great portion of the abdominal cavity it may happen, as well when the stomach is inflated as when the big bowel is filled with water, that no alteration of position can be detected.

2. Tumours of the gall-bladder behave in general like those of the liver. Particularly are they, by the water injections, pushed upwards and against the front wall of the belly, a circumstance of some value when the differential diagnosis from kidney tumours has to be made.

3. Spleen tumours by inflation of the stomach pass to the left, and often also a little downwards. This downward movement is,

however, sometimes only an apparent one, because the long axis of the organ inclines to drop downwards.

When the bowel is distended the spleen ascends, and usually also passes to the left. The displacement to the left is often very slight, because the long axis assumes a more horizontal direction.

Moveable splenic tumours which have left their normal position, move both by stomach and colon distention into the normal splenic region, and frequently thus the splenic dulness becomes easily appreciable.

This method of examination was specially useful where the question was to decide whether, in unmistakable enlargement of the liver, a tumour palpable in the left hypochondrium was the left liver lobe or the enlarged spleen. In the first case the tumour moved upwards and to the right with the liver; in the latter it passed far away from the liver, and between the two the distended stomach could be recognised by its air-pillow feel and tympanitic resonance. Distention of the colon also separates such swellings from each other, but not so markedly as distention of the stomach.

4. For the diagnosis of gastric tumours the inflation of the stomach is very useful. If such inflation brings the contours of the organ into prominence, the decision is usually simple. In other cases one may say that a tumour is stomachal, if after inflation it gives a clear tympanitic sound, that it becomes broader and its outline less distinct, that isolated tuberosities which before inflation were near each other, after that has been done part company. Most frequently this is the behaviour of tumours seated on the anterior stomach wall and greater curvature.

But affairs are more difficult in many cases of circumscribed tumours in the pyloric region. These usually move during distention to the right and downwards, but it is difficult sometimes to make out their relation to the stomach. Tumours seated on the colon transversum and great omentum can show the same behaviour. In such cases the bowel injection is often decisive. Stomach tumours will under it move upwards, and allow themselves to be clearly distinguished from the filled colon. Tumours seated on the small curvature behave in very diverse ways. If the stomach during distention move *in toto* downwards, then the tumour can also do the same, and the passage of the tumour into the anterior stomach wall may be easily made out.

It is the rule for tumours on the small curvature, if not adherent to the liver, to disappear in the depths, because the great curvature of the inflated organ bulges more to the front. This behaviour may occasionally help to decide whether a tumour may belong to the left hepatic lobe, as inflation would press it more to the front wall of the belly. Distention of the colon also causes lower curvature tumours to pass upwards, and then to disappear in the deeper parts.

5. Tumours of the large intestine are in many cases easily recog-

nised by filling of the bowel. The swelling becomes, as it were, broader and less easily defined in its long axis. Tumours of the colon transversum pass downwards by stomach inflation, and might be mistaken for gastric ones. Different from the latter, however, by injection they may pass downwards, because the filling of the transverse colon lengthens it, and thus causes a sharper bend downwards. It is to be remarked that intestinal tumours offer the greatest difficulty to diagnosis, because frequently situated in places not very accessible to palpation.

6. Tumours of the great omentum are, as well by inflation as injection, shoved downwards and pressed strongly against the anterior belly wall by the latter means particularly. In some cases where adhesions had taken place to the abdominal walls, such places were clearly marked out as retractions of the wall.

7. Injections are of the very greatest importance for the diagnosis of renal tumours. They remain usually unaltered by inflation of the stomach. By injection they first, in reality or seemingly, move a little upwards, then become scarcely feelable, and disappear in the deeper parts. If the musculature of the belly is slack, the filled colon can be traced over the swelling. If the kidneys are not in their normal place, injection presses them into it. Very large tumours do not completely disappear during filling of the bowel, only the median border is less easily palpated. But the tumour is very characteristically displaced outwards and backwards. The colon may then be seen over the middle border.

8. In one case of pancreatic cyst the diagnosis of a kidney tumour was made, and the error was only corrected when operation was begun. The swelling had behaved like a kidney, yet it had been noticed that during inflation of the stomach a slight displacement, of what was supposed to be a left kidney somewhat lowered in position, had taken place to the right.

9. Ovarian tumours were also found to move forwards, a little upwards, and were shoved to the side to which the diseased ovary belonged.

Minkowski also accentuates other points which, in his experience, are of great service in diagnosing the nature of abdominal tumours:—

1. It is of importance to examine the patient from the back; in this manner lateral bulgings of the trunk become visible. Tumours of liver and spleen cause usually a forward arching, which is greatest at the undermost thoracic aperture, so that the undermost ribs partake in this bulging, and leave only a mere indication of the normal countersinking of the lumbar region. Kidney tumours cause a protuberance, deeper seated and in the middle lumbar region. Yet it is not always the case that renal tumours betray their presence in this manner. Frequently enough in kidney tumours and mobile kidney a sinking in, or at least a lessened resistance of the soft parts is noticeable. In such cases bowel injection will

cause the bulging to appear. This is a most constant symptom in wandering kidney and movable renal tumours. Normally, and even when tumours of other organs are present, this protuberance is not caused by ever so great distention of the bowel.

2. Bimanual palpation, as first recommended by Trousseau, is also very useful. Only care must be taken to have the counter-pressure exactly over the kidney region.

3. The observation of the respiratory displacement which takes place in tumours of stomach, bowel, omentum, and kidneys, to contradistinguish them from hepatic and splenic tumours, leaves us often in the lurch, for those tumours can also make occasionally similar respiratory excursions as liver and spleen. In such cases the following procedure should be adopted:—One should try to fix the tumour in the position it has assumed during inspiration. If the tumour is hepatic, it must ascend with the diaphragm; on the other hand, in swellings connected with other organs, the expiratory ascent is prevented, even though adhesions may have formed between them and the liver.

OCCASIONAL PERISCOPE OF DERMATOLOGY.

By W. ALLAN JAMIESON, M.D., F.R.C.P., Extra Physician for Diseases of the Skin, Edinburgh Royal Infirmary; Lecturer on Diseases of the Skin, Edinburgh School of Medicine.

THE FINAL ISSUE IN CASES OF CARCINOMA OF THE FACE, WITH EXCEPTION OF THAT OF THE LIPS.—Dr Ohren of Würzburg, after an elaborate examination into a series of extensive and carefully compiled statistics, draws the following conclusions:—Recurrences in cancer of the face, as of other parts, after operation may be regional, continuous, and infectious. The first arise from a morbid disposition affecting the entire region; the continuous are such as develop from germs which have been left behind; the infectious originate from contagion, or deposition at a distance. Should a period of three years of immunity elapse, a recurrence is little likely. In accordance with his investigations, it may be assumed that cancer of the face is relatively a benign disease as compared with cancer elsewhere, since its growth and extension advance, as a rule, very slowly; its presence, even for years, does not perceptibly affect the well-being of the patient; infection of the lymphatic system or metastases to internal organs are very rare. On the contrary, recurrences are frequent, a circumstance which to some extent seems remarkable, but the following explanations or suggestions render this more explicable. Cancer consists for a long period as a small superficial ulcer or nodule, occurring in indolent people, as a rule, from the country districts, and in consequence it attracts little attention. Then suddenly, either without noticeable cause, or especially after some local injury, it takes on rapid growth, the deeper tissues are implicated, and before the patient decides on an operation the cancer has acquired a considerable extent, the

definition from sound tissue in the deeper parts, and particularly from the bones, is difficult to make out, important functions of the diseased parts and their neighbourhood set narrow limits to the knife, and thus arises the impossibility, too frequently experienced, of removing all the evil. Permanent cure would be much more often attained in cancer of the face, from its relative benignity, if in operating one could remove a larger area than is, as it happens, usually possible. It is particularly in operating on cancer of the face that one should bear in mind the rule laid down by Thiersch, to cut away a wide border of sound tissue, placing the personal appearance of the patient in the second position. The prognosis of cancer of the face will turn out favourable, provided that in the first place the patient offers himself tolerably early for operation—all efforts to restrain the mischief by superficial cauterizations being avoided, since owing to such the proper time for interfering may pass by, and the clinical characters of the ulcer be obscured; and in the second place, that the operation itself be thorough, and the cancer be extirpated with as wide a margin as possible of sound tissue on all its sides.—*Archiv für klinische Chirurgie*, June 1888.

TREATMENT OF PSORIASIS.—As a preliminary measure the scales must be removed, and for this purpose soapy lotions have been advised, also simple and alkaline baths, etc. In France the scales are made to fall by means of alternate baths of starch and vapour baths, followed at night by the application of caoutchouc. It must be noted that the whole body must not be covered at once, nor suddenly, but that it is more prudent to make partial impermeable coverings. Every psoriatic patient has not the means or time to resort to baths, whose effect is, by the way, not a rapid one. We therefore recommend as a simple and speedily efficacious method, within the reach of all, the following ointment, to be used twice daily:—

Rx	Ammoniaë carbonatis, . . .	10·0
	Lanolini,	25·0
	Cerati galeni,	50·0

This ointment does not produce any pain, is irritating, and causes the crust to disappear, leaving the surface smooth and free, giving an opportunity for other agents, which have a direct and real action upon the affection proper, to act with certainty. In spite of all new forms of treatment introduced from time to time for the cure of psoriasis (some of which have their special application for certain cases), Vidal believes that for the generality of cases we find in the oil of cade a superiority which forces us to come back to it again and again. By its use it would appear that recurrences are less frequent. The following formula is given:—

Rx	Amyli glycerolis,	100·0
	Saponis mollis,	5·0
	Olei cadini,	100·0

This makes a soap much more easy of application than the oil of cade alone. It should be applied each night, and a flannel dress worn, which is only changed at long intervals. In the morning a bath with tar soap is to be taken, and, if desirable, the odour of the tarry preparation is removed with some perfume.—*Journal of Cutaneous and Genito-Urinary Diseases*, May 1888.

TREATMENT OF INFANTILE ECZEMA.—In those obstinate cases of eczema which occur so frequently in children during the second half of the first year of their lives, and affect particularly the face and extensor aspects of the extremities, should simple means such as Lassar's paste not cure, Boeck recommends compresses of a weak solution of nitrate of silver (1 to 500), alternating with an ointment. The compresses of the nitrate are usually applied covered with gutta-percha paper for two or three hours night and morning, and a soothing ointment during the rest of the day and at night. The unguentum vaselini plumbicum suits very well. This treatment can also be used with advantage in the moist eczema of adults.—*Vierteljahresschrift für Dermatologie und Syphilis*, June 1888.

TREATMENT OF SYCOSIS.—Unna considers that the ordinary form of sycosis is like that due to the trichophyton tonsurans, caused by parasitic agency, though in it the microphytes are cocci, hence he names this variety kokkogenic sycosis. The radical cure of it is a much more difficult problem. Not as if we do not possess a great number of good remedies capable of destroying the cocci, and at the same time of removing the resulting inflammation of the follicles, but since it demands an uncommon degree of perseverance to pursue the parasitic germs into all their lurking places and completely to annihilate them. In general the greatest success will be obtained if this form be treated as a furunculosis, and the affected area be shaved in order to produce a deeper influence on the disease. In severe cases a carbolic-mercurial or a resorcin-plaster muslin should be worn constantly; or where treatment at night alone is granted, a zinc sulphur salve muslin should be applied all night, while every morning the suppurating hair follicles should be epilated, and touched individually with a 5 per cent. resorcin spirit. The entire series of reducing agents—sulphur, ichthyol, resorcin, pyrogallol, chrysarobin—can then be employed at night as ointments (2–5 per cent.), or as moist compresses (especially ichthyol, 10 per cent.) In like manner mercurials may be used, as unguentum hydrargyri, which can be rendered stronger by the addition of carbolic acid, 10 per cent., and corrosive sublimate up to 1 per cent. Greater difficulties arise should the hair from any reason remain uncut; then after epilation and bathing the suppurating follicles, must follow the application of very soft ointments of zinc and sulphur, or of weak strengths of resorcin and corrosive sublimate. Such treatment is, however, always much more pro-

tracted. All surgical measures are superfluous and dangerous. Scarifications act favourably for the moment, but lead to fresh implantations of cocci. Epilation *en masse* without selection only furnishes new centres of infection. Consequently, Unna recommends solely an "epilatio necessitatis," the extraction of hairs from those follicles which are already suppurating, in order to be able the better to disinfect them with carbolic acid, resorcin, or sublimate. When the sycosis has been got rid of by the foregoing measures, the as important after-treatment and prophylaxis begin, without which relapses may certainly be anticipated. To these belong before everything the treatment of the sycotic catarrh, which is much more frequently present than many physicians, and even the patients themselves, are inclined to believe. Nasal douches of a 1 per cent. solution of ichthyol, persevered in for a lengthened period twice a day, are very efficient in removing it. Washing with overfatty sublimate soap, shaving with the same soap, destruction of each fresh suppurating point as it appears, by extracting the implicated hairs, and cauterizing by touching with the previously mentioned spirituous solutions, or with a pointed rod dipped in a corrosive sublimate paste. The nightly inunction of a weak resorcin or sublimate vaseline, when the beard is still worn, or with a corresponding paste if it is removed, and continued steadily. Such are some of the modes of procedure, which, if strictly observed, will serve to keep off relapses.—*Monätshefte für praktische Dermatologie*, No. 11, 1888.

PERISCOPE OF GYNÆCOLOGY AND MIDWIFERY.

By J. MILNE CHAPMAN, M.D., Inverness.

A NEW METHOD OF EXAMINATION IN GYNÆCOLOGICAL CASES (Mendes de Leon, Amsterdam, *Centbl. f. Gyn.*, No. 21).—The writer relates how, at an operation he was conducting for removal of the ovaries, he found great difficulty in reaching the ovaries and in keeping the intestines away from the pelvis. A friend who was present told him of Trendelenburg's device for obtaining a free field when operating on tumours of the bladder, which consists in placing the patient's head towards the light and elevating the pelvis considerably above the level of the head. This was accomplished by bending the patient's knees over the shoulders of two assistants, who stood with their backs towards the head. As soon as this position was assumed, all difficulties disappeared. The ovaries, which were very deeply situated and adherent, were easily reached, and a bleeding point in the floor of the pelvis was with ease secured by forceps and tied. The writer was so pleased with the success of the manœuvre, that he has applied it to ordinary gynæcological cases, especially those in which, owing to the presence of tympanitis, there is difficulty in feeling the uterus

bimanually. A further advantage is, that in this position the patient is unable to use the abdominal muscles, and thus does not offer the same involuntary resistance to the external examining hand as in the usual position; and thus the writer finds that he can make quite satisfactory examination of patients whom otherwise he would have been forced to put under chloroform. When assistants are not available, the end in view may be obtained by placing the patient on a lounge with the head where the feet should be, and with the legs, bent at the knees, hanging over its back. The writer says that all who have examined his patients in this position have expressed themselves as being surprised at the ease with which the whole contents of the pelvis can be mapped out, and that many have been enabled in this way to feel for the first time the ovaries bimanually.

CRANIOTOMY *versus* PREMATURE LABOUR, TURNING, AND PERFORATION (Leopold).—This paper or book consists of a critical survey of the clinical material obtained at the Dresden Maternity Hospital. The first three sections on premature labour, turning, and perforation are by the author's assistants. The section on Cæsarean section is by Leopold, and in it he discusses twenty-three cases of the operation which he has performed during the last four years after Sanger's method as modified by himself, and he then puts the question—Are we now in a position to recommend Cæsarean section in preference to perforation of a living child, or in what cases is the latter procedure necessary. He would have it remembered that Cæsarean section is a laparotomy, and is even in the most experienced hands a most serious undertaking. Undoubtedly it is a worthy object of ambition to save both mother and child, but if every detail and requisite for the due performance of a laparotomy are not to hand, then he would advise perforation, and that at an early period in the case, not when the patient's powers are exhausted by delay. He then gives the following *résumé* of the results of these various operations obtained in the Dresden Hospital:—After induced premature labour—maternal mortality, 2·2 per cent., all of which were traceable to infection; live births, 66·6 per cent. After turning—maternal mortality, 4·8 per cent., of which none were due to infection; live births, 59 per cent. After perforation—maternal mortality, 2·8 per cent., of which none were infectious; live births, none. After Cæsarean section—maternal deaths, 8·6 per cent., of which half were due to infection; live births, 87 per cent.

PERISCOPE OF LARYNGOLOGY AND RHINOLOGY.

By J. MAXWELL ROSS, F.R.C.S. Ed.

THE TREATMENT OF TONSILLITIS BY SALICYLATE OF SODIUM.—Dr Hillaby of Pontefract recommends the following plan of treat-

ment (*Practitioner*, April 1888). Open the bowels freely with a good dose of Mist. Sennæ Co., put the patient on milk diet, and administer the following draught :—

R Sodii salicylatis, . . . grs. x.-xv.
 Tincturæ aurantii corticis, . . . ℥x.
 Aquam ad, ʒij.
 M. fiat haustus, quartis horis surrendis.

The dose of the salicylate should be reduced as the inflammation subsides. Dr Charles Graham of Pontefract, writing on the same subject in the May number of the *Practitioner*, says that in incipient cases, and especially those occurring in gouty or rheumatic habits, the drug acts like a charm. In cases where there have been several recurrences small doses do no good, and large ones sometimes fail. In such cases he has found bicarbonate of sodium, in doses of from 10 to 20 grains every two or three hours, very useful. It appears to be equal to the salicylate in subduing inflammatory action and preventing suppuration, and it is free from the tendency to produce tinnitus, vertigo, and deafness.

SOME SLIGHT THROAT AFFECTIONS : THEIR NATURE AND TREATMENT.—Under the above title, Dr Carpenter of Croydon (*Practitioner*, April 1888) describes a class of cases of a mixed character, which, however, agree in one particular, that they are preceded by sore throat with which suspicious circumstances are connected, such as diphtheria in the house or neighbourhood. After the throat affection has subsided, other symptoms may arise indicating congestion of lungs, liver, kidneys, or other organs, and attended with high fever. In one case there occurred after the sore throat renal disturbance, then pneumonia, then jaundice and acute rheumatism, with cardiac complications before recovery took place. The author associates these cases with blood mischief connected with some diphtherial poison, and indicated by specific action in the throat. He suggests that the diphtherial germ has aborted, as it were, but the mischief is in the tissue of the throat, and from it passes into the blood, where its "resting spores" block up the capillaries in various organs or glands one after another. Development goes on, and conditions are produced which are not in themselves infectious to others, but only to the host himself. Treatment in these cases should be directed to the first cause. Local colonies of the microbe in the throat should be destroyed by applications of quinine or powdered sulphur and pure charcoal on the tonsils, and by injecting these into the nasal passages. A spray of permanganate of potassium solution and internal administration of the salt are also recommended. Sodium sulpho-carbolate should be given for fever; and if stimulants are found necessary, ammonia is preferable to alcohol.

TRACHEOTOMY IN TUBERCULAR LARYNGITIS.—Dr Okell, Leicester,

reports (*Provincial Medical Journal*, April 1888) the case of a man, aged 34, on whom the operation was performed after respiration and pulse had stopped. Artificial respiration, ether, and brandy brought him round, but five and a half hours elapsed before he recovered consciousness. The writer states that a week later an examination was made of the larynx, and advanced tubercular disease found to exist. The usual symptoms appear to have been absent, and there was no evidence of pulmonary mischief, nor were the bacilli found though looked for. The patient continued to wear a vulcanite tube when he left hospital; and it is stated that the operation greatly improved his voice and general health, rendering him able to do his work well, whereas before it he had great difficulty in following his occupation.

ACTINOMYCOSIS.—Mr Frederick Eve has a paper on this subject in the *Practitioner* for May 1888. It is based on specimens in the Museum of the Royal College of Surgeons. Moosbrugger's statistics regarding the distribution of the disease in man are given. Of 75 cases the disease in 29 was in the neighbourhood of the lower jaw, in the mouth and neck; in 9 in the upper jaw and cheek; in 1 case in the tongue, and in 2 involving the pharynx and œsophagus; 11 in the intestines and abdominal viscera; 14 in the bronchial tubes or lung. In 7 cases the seat of the disease could not be ascertained. The frequency of the primary disease in or near the mouth and jaws may be gathered from the fact, that in 40 out of 75 cases it affected those parts. Up to the present time only 4 cases have been observed in the tongue in man, whereas lingual actinomycosis is not uncommon in cattle. It is worthy of remark that while over 70 cases have been recorded on the Continent, only 7 have been published up to 1887 in England and America. This may be explained either by supposing that this disease often passes unrecognised in England or America, or that it is more common on the Continent. Should the latter surmise prove correct, the Teutonic fondness for sausages and uncooked ham may explain the diversity, especially from the fact that pork is affected as well as beef. When flesh is prepared in the usual way, the morbid change is so evident that its transmission to man by diseased meat is improbable. Direct inoculation of man from animals occurs rarely. In only 10 of the 75 cases mentioned were the individuals engaged in occupations which brought them into contact with cattle, and in two only had the sufferers to do directly with diseased cattle. In one of these, a case of actinomycosis of the tongue, the patient had opened and subsequently looked after a tumour of the jaw in a cow.

THE ELECTRICAL RESISTANCE OF THE BODY IN GRAVES'S DISEASE.—Dr Cecil E. Shaw (*Provincial Medical Journal*, May 1888) gives notes of 14 cases—9 of Graves's disease and 5 of simple goitre—in which he made 46 observations. The results of these

are in accord with Dr Wolfenden's demonstration of the alteration in the resistance offered by the body to the passage of an electric current. All the cases of Graves's disease showed a marked lowering of this resistance. The electrical resistance, the author agrees with Dr Wolfenden, thus becomes a most valuable aid to diagnosis between simple goitre and early or undeveloped forms of Graves's disease. Its importance is enhanced by the fact that only one of the cases investigated was what would be called a well-marked one, showing considerable exophthalmos, von Graefe's sign, etc., and all might have been unrecognised by a careless observer.

TRACHEOTOMY WITHOUT THE CANNULA.—Dr T. Addis Emmet writes (*N. Y. Med. Journal*, 2nd June 1888), that the patient would be spared great discomfort after the operation of tracheotomy if the use of the tube could be dispensed with. Moreover, a source of irritation would be removed which by its presence retards the healing process and increases the danger from blood-poisoning. In his earlier years, when he had considerable experience of the operation, he sometimes adopted this plan of doing without the tube, keeping the wound open by means of a thick lead wire in adults, a long silver wire in children, in whom he also sutured the skin to the tracheal mucous membrane, taking precautions to prevent the wire pressing on the vessels of the neck. He suggests that a similar proceeding, with more elaborate suturing of skin and mucous membrane, might be adopted. [The objection to such a mode of operating seems to be the probable necessity of a plastic operation when the tracheal opening is no longer required.]

NASAL FIBROMATA.—Dr W. E. Casselberry of Chicago records a case (*Journal of American Medical Association*, 21st April 1888), and gives a table of seven others. He contrasts the various modes of operating, and gives the preference to the galvano-cautery, by means of which such tumours may be removed piecemeal. General anæsthesia is unnecessary, the local application of a solution of cocaine (5-10 per cent.) being sufficient. Disfigurement of the face from scars of extra-nasal operations is also avoided. He, however, adds that it may not be suitable in all cases, as enormous size and penetration into accessory cavities may render it ineffective.

TRACHEOTOMY IN MORPHINE POISONING.—Dr Bransford Lewis of St Louis notes a case (*Journal of the American Medical Association*, 19th May 1888) of the above. The ordinary treatment was adopted, but mucus collected in the trachea to such an extent as to cause cyanosis, which was not properly relieved by artificial respiration. Tracheotomy was therefore resorted to, with the double purpose of clearing the trachea and using the bellows to inflate the lungs. The entrance of the cold air caused so much coughing that the mucus was completely got rid of and the bellows became unnecessary. The cyanosis disappeared. The tube was removed the following

day, and the incised membrane and cartilage sutured. Four days later the patient became subject to delirium tremens, from which he died in thirty-six hours. The presence of pneumonia or other complication of that sort was definitely excluded by post-mortem examination. The author mentions that since the occurrence of this case he has become acquainted with one in Vienna and three under the care of Dr Fell of Buffalo, in which tracheotomy followed by bellows respiration formed a successful adjunct to the treatment.

SURGICAL PERISCOPE.

By A. G. MILLER, F.R.C.S.E.

THE SURGERY OF THE URINARY ORGANS.—Mr Reginald Harrison of Liverpool gives, in the *Lancet* for 14th January 1888, an abstract of his Lettsomian Lecture on the above subject. The points most prominently advocated in the lecture are that urine is capable of producing febrile symptoms when it is absorbed by the tissues; that this occurs in virtue of chemical changes towards the production of which urea forms an essential constituent; that this poisoning may occur even with normal urine, though of course unhealthy urine is more dangerous; that the mucous membrane of the urethra, in virtue of its epithelium, prevents, while its removal by any means promotes, absorption of urine; that the normal "*urine tight*" condition of the urethra is undone by inflammation which destroys the epithelium, by instruments which rub off the epithelium, and by injuries which tear the mucous membrane; that in a similar manner the bladder is water tight, but if over distended may lose this important quality, and urine absorption occurs; that in urethral cases "*urine fever*" is due to absorption of urine by a raw surface caused by tear, knife, or catheter; that therefore those operations on the urethra (in the treatment of stricture) are safest which provide for the thorough draining away of the urine, and for easy and frequent washing out with antiseptics. In the second lecture he deals with the prostate, the cause of its enlargement in certain persons, and the treatment of this hypertrophy. His view is condensed in the following sentence:—"If the prostate represents the chief means of retention and support for the contents of the male bladder, the circumstances of individual life will sufficiently explain why hypertrophy happens to one person and not to another. It (hypertrophy) is called into existence where, pathologically speaking, quantity seems to supplement quality. In some it may be exactly compensatory; in others, by excess it may be detrimental." In regard to treatment, Mr Harrison recommends a timely use of the catheter to "ward off the changes, which do not always cease" at the point of being merely compensatory.

MORBID ANATOMY OF PERI-CÆCAL INFLAMMATION (J. H. Musser, M.D., *Philadelphia Medical Times*, 16th January 1888).—

Dr Musser considers that inflammation originates most frequently in the appendix, and that therefore *appendicitis* and not *typhlitis* is the common affection. The appendix varies much in length and position—it may lie with its point upwards, across (adherent to the sigmoid), or in the pelvis. In one case it was nine inches in length, and adhered to the under-surface of the liver. It may be contracted to a mere cord from old inflammation, or it may be dilated and crammed with fæces. Such things as buttons, shot, pins, worms, and gall stones have been found in it. It is most likely that these substances are frequently the cause of inflammation and ulceration. In making a post-mortem examination, the following conditions are usually found,—1, œdema of the tissues in the right iliac fossa—perhaps infiltration of pus; 2, peritonitis, local or general; 3, intestines more or less adherent. The originating abscess will be in the right iliac fossa before or behind the cæcum, or in the pelvis. The size of the abscess varies. The appendix is always found in an inflamed and ulcerated condition. The perforation varies in size. It may be so extensive as to amputate a portion of the appendix, or may be so small as to be scarcely discoverable. The appendix is dilated, and very often there is a foreign body discovered. The perforation is generally near the colon. The position of the perforation and the presence of the foreign body are often overlooked on account of the post-mortem not being made carefully enough. In some cases the abscess bursts in such regions as the umbilicus, the rectum, the scrotum, the hip-joint, the bladder, and even the pleural cavity. Dr Musser concludes his paper with the following:—“These are the chief points in regard to the morbid anatomy of peri-cæcal inflammation. In the first place, that peri-cæcal inflammation is due, in the larger number of cases, to the inflammation, ulceration, and rupture of the appendix vermiformis with the secondary formation of an abscess; that the position of the abscess depends entirely upon the original position of the appendix; that the further course of the abscess cannot be determined; that in the larger number of cases the inflammation and ulceration are due to the presence of a foreign body occluding the canal—a retention inflammation. The sequence of events appears to be as stated; and while it may appear to be a refinement of terms to differentiate between typhlitis and appendicitis, it is almost necessary in order that a correct and well-defined appreciation of the pathology be determined, so that early and proper treatment may be instituted. Unless such a refinement be made, cases of this kind will be frequently treated as simple typhlitis, whereas in sixty per cent., or perhaps a larger proportion, they are cases of inflammation of the appendix.”

SURGICAL TREATMENT OF THE ABDOMINAL COMPLICATIONS OF TYPHOID FEVER.—Dr Thos. S. K. Morton of Philadelphia, in writing to the *Medical News* (26th November 1887), advocates

immediate opening of the abdomen whenever there is evidence of perforation in typhoid fever. These cases are always fatal, he says, while abdominal section gives the patient a chance, and the only chance. Diagnosis is the first important point. The symptoms he relies upon are,—sudden pain increasing and extending, fall of temperature, small and rapid pulse, shallow breathing, haggard appearance, and, perhaps, tympany with diminished liver dulness. “No one (symptom) is positive, but the combination, in the absence of hæmorrhage, is *almost* so.” Abdominal section having been agreed upon and performed, the next question to be answered is, “What shall be done with the lesions when found?” Dr Morton suggests two possible modes of treatment, the former of which he prefers. Turning in the edges of the ulcer with Lembert stitches, or resection of the portion of bowel containing the ulcer. The peritoneal cavity should then be thoroughly washed out, dried, and perhaps also drained with a Keith’s glass drain-tube. The draining power of the tube may be increased by carrying a twist of absorbent cotton (medicated) to the bottom of the tube. This will draw up fluid by capillary attraction, and may be changed frequently. Dr Morton, at the conclusion of his paper, urges that with our present knowledge it is our imperative duty to open the abdomen in cases of typhoid perforation, “unless the future shall demonstrate that no good can ever be accomplished by surgical interference in these desperate and, at least heretofore, necessarily fatal cases.”

“A second gastrotomy for a foreign body, this time a peach-stone, has just been published by Dr William T. Bull of New York. The subject of the operation was a coloured boy 16 years of age, and the operation itself differed in certain features from the prior operation of Richardson. The incision was three inches in length from the level of the ninth costal cartilage to two inches above the umbilicus; the upper limit was determined by noting the point where the percussion dulness of the liver disappeared. This incision was chosen because an incision in the median line would be nearer to the œsophageal opening than one parallel with the border of the ribs, and the hand or finger operating through it would be less encumbered by the overhanging ribs. This incision exposed a part of the anterior wall of the stomach and its greater curvature about two inches and a half from the pylorus. At the part chosen for the incision into the stomach, two loops of silk were placed two inches apart in a vertical line, and the incision made an inch and a quarter long between them; additional loops in the edges gave greater control over the incision. The finger inserted into the stomach through this incision closed the wound entirely, and was passed directly backward until the vertebral column was felt, and then upward till it entered the œsophagus, thus making the vertebræ a guide to the œsophagus. The anterior wall of the stomach, with its loops of silk, followed the finger into the

cavity, and was folded on itself like the invaginated scrotum in examination of the inguinal canal. The foreign body was felt, and gentle attempts were made to extract it through the stomach. These failing, a slender bougie was passed along the finger, up the œsophagus, and projected from the mouth; a sponge was attached by strong silk to the lower end, and pulled through with a view to draw the peach-stone up from below. The first attempt was unsuccessful, but a second with a larger sponge brought the stone into the mouth, where the finger met and extracted it. A rapid recovery without accident followed the operation. The noticeable features of the case which contributed to its success are: the small wound in the stomach, just sufficient to admit the index finger, the invagination of the anterior wall of the stomach, the control of the stomach wound by loops of thread so that it was held closed against the finger, which acted as a plug and prevented the escape of the gastric fluids, and the very moderate manipulation of the stomach itself. Dr Bull emphasizes the advisability, when there is doubt as to the possibility of safely extracting a foreign body by œsophagotomy, of resorting promptly to opening the stomach."—*Boston Medical and Surgical Journal*, 10th November 1887.

Dr Bull's paper is given at length, and also the discussion which followed its reading before the New York Surgical Society, in the *N. Y. Medical Journal* for 29th October 1887.

THE STATISTICS OF INTESTINAL SURGERY (J. S. M'Ardle, F.R.C.S.I., *The Dublin Journal*, January and February 1888).—Mr M'Ardle, in a paper communicated to the *Dublin Journal of Medical Science*, has collected and classified a large number of recorded cases of enterectomy and enterorrhaphy. A. *Resection for Gangrenous Hernia*—76 cases, of which 41 died. In most death was from septic peritonitis; 8 died from exhaustion. B. *Resection for Intussusception*—13 cases with 10 deaths; and *Acute Obstruction*—6 cases with 4 deaths. These two sections give 95 cases with 55 deaths. Mr M'Ardle calls this the bright side of the picture, for the favourable cases are most likely to have been published. From a study of the cases, Mr M'Ardle considers that the safest procedure is to form an artificial anus, and to resect the bowel afterwards if need be. In support of this opinion he gives 36 cases of gangrenous hernia in which adhesions were left untouched—of these only 9 died. The enterotome of Dupuytren cured 13, resection was performed in 5 with 1 death, and in 3 spontaneous closure of the fæcal fistula took place. C. *Chronic Intestinal Obstruction*—26 cases were resected; 7 for simple stricture with 3 deaths, 19 for malignant disease with 11 deaths. D. *Resection for Artificial Anus*—49 cases with 19 deaths. Of this section Mr M'Ardle says—"The above list is very encouraging, especially as it includes a number of cases quite beyond the reach of treatment by Dupuytren's or other methods. At least two-thirds of the cases recorded have recovered. Now this state of

affairs, when compared with that shown in section A., is a startling proof of the folly of subjecting patients suffering from gangrenous strangulated hernia to a lengthened operation." Mr M'Ardle next takes up enterorrhaphy (bowel suture). Of this operation for *perforating wound of the abdomen* he gives 34 recorded cases (8 in 1885, 14 in 1886, and 7 in 1887) with 11 recoveries. Of laparotomy and suture for injury *without a perforating wound*, he gives only 8 cases with 2 recoveries. The danger to life in these operations seems to be, first, the *length of the operation*. "If lasting more than an hour and a half it can hardly be successful." If the patient recovers from the immediate effects of the operation the next great risk is from *feculent extravasation*. This may result from yielding of sutures or gangrene of bowel. In most cases, therefore, of injury to bowel, the operation that is most quickly and easily done will be the best for the patient, and if enterorrhaphy is performed, the sutured bowel should be left close to the abdominal wound, so that, should the bowel give way, the feculent matter may have a chance of discharging externally. Mr M'Ardle at the close of his paper goes minutely into the details of the operation of suturing bowel.

Part Fifth.

MEDICAL NEWS.

TABLOID TRITURATES (Burroughs, Wellcome, & Co.).—We have received various samples from the manufacturers of these triturations, including such powerful and important substances as aconite, belladonna, digitalis, nux vomica, apomorphine, morphine sulphate, etc. This is a form of medicine very convenient, and at the same time most efficient, whilst the dose is always sure to be accurate. In these tabloids the medicines exist in a state of very fine division, which greatly increases the activity of the drugs.

These tabloids are in glass tubes, and sixteen of these tubes are neatly fitted into a beautiful leather case, which can easily be carried in the pocket; and we have much pleasure in commending the case and also the *triturations*, feeling sure that these *tabloids* are likely to come into general use by the profession.

The high standing of the well-known firm of Burroughs, Wellcome, & Co. is a sufficient guarantee for the purity of the drugs and for the accuracy of the doses.

NESTLÉ'S MILK FOOD.—This is one of the very best foods for infants, and is most extensively used.

HARTMANN'S SANITARY WOOD WOOL BAPKINS.—These are invaluable because of their absorbent and antiseptic properties.

We can confidently recommend them to the notice of the profession and of our readers, feeling confident that they require only to be known to make their employment general.

HARTMANN'S HYGIENIC WOOD WOOL DIAPERS.—We can confidently recommend these wood wool diapers as soft, light, and antiseptic. They are excellent in all cases, and are invaluable to those having occasion to travel. They are superior to any other kind of diaper with which we are acquainted.

ÆSCULAP, VICHY, AND CARLSBAD MINERAL WATERS.—We have received from Messrs Ingram & Royle, London, specimens of these famed mineral waters, and having had an opportunity of testing the same, we can confidently recommend them as excellent aperients, and valuable in very many forms of dyspepsia.

"THE NATURAL KARLSBAD SPRUDEL SALT."—We have also received from the same agents a specimen of this salt, which is obtained by evaporation from the "Sprudel Water." The salt is alkaline. This salt may be used by itself or as an adjunct to any of the above mineral waters, whose action it greatly assists. It is an excellent preparation.

CORRESPONDENCE.

To the Editor of the Edinburgh Medical Journal.

SCARLATINIFORM RASHES DURING THE PUERPERIUM.

DEAR SIR,—I was much interested in the paper by Dr Mackness under the above heading, published in the August number of the *Edinburgh Medical Journal*.

A case has recently come under my notice presenting characters very similar to those described by Dr Mackness, giving me for some days a great deal of trouble and anxiety. The following few notes of the case I send you:—

A lady, aged 20, primipara, was delivered, at 7 A.M. on the 14th of last June, of a healthy but small female child. First stage of labour was very much protracted, but the subsequent ones were not of unusual length. After the removal of the placenta, there followed uterine inertia, with alarming flooding and collapse. I introduced my hand and swept all clots out of the uterus, administered ergot and brandy, and applied cold, etc., without any effect upon the hæmorrhage. A second time I introduced my hand, and kept it in the uterus until that organ contracted and flooding ceased. From this, things went well until the night of the 16th, when I found temp. $100^{\circ}2$, and pulse 90; no abdominal pain; lochia abundant and sweet; vaginal injections of Condyl's fluid were being used. The next morning, 17th, I was informed by the nurse (who was certificated) that the patient had measles (prevalent in the neighbourhood at the time). I found a rash on forehead, face, and backs of wrists; skin dry; temp., $102^{\circ}4$; pulse, 98; eyes suffused; no sore throat or cough; no abdominal pain. There was no rash on the body; milk abundant and very rich; lochia ample, not offensive; urine—acid quite

sufficient, was not examined for albumen; complained of headache. At 7 P.M. the rash had come out freely over limbs and body, especially on the back and under the binder; there was a good deal of constitutional disturbance; temp., $104^{\circ}\cdot 1$; pulse, 110; lochia were plentiful and not offensive, and all the secretions with the exception of that of the skin seemed abundant; no sore throat or cough; but complained of sickness, thirst, and headache. Full doses of quinine were given, and surface of the body sponged with tepid water.

18th, 9 A.M.—Had a bad night; rash still abundant. This morning while vagina was being washed out a large clot came away, and this was followed by offensive discharge; temp., $103^{\circ}\cdot 4$; pulse, 110; uterus was washed out with a solution of carbolic acid, and quinine continued. 6 P.M.—About two hours ago profuse perspiration came on with abatement of the constitutional symptoms; felt much relief; temp., $101^{\circ}\cdot 2$; pulse, 100. From this time the patient began to improve slowly but steadily, and the rash had entirely disappeared on the 22nd. It reappeared again, however, on 24th, but she was free from it a second time on 27th; then followed general desquamation, which went on for another ten days. After this the patient made a good recovery, with the exception of a slight attack of cystitis, which did not last long.

For the first twelve hours I was in some doubt as to the nature of the case. On the face and wrists the rash resembled that of measles, but after it had fully developed it assumed more the character of erythema, though unaccompanied by itching. Like Dr Mackness's cases, the rash appeared on the fourth day, but the temperature began to rise on the evening of the third. After the eruption, which was very diffuse, had come out fully, I looked upon the case as one of septic absorption. No doubt after my hand had been removed from the uterus a clot formed and decomposed, and the patient, already drained and blanched from loss of blood, more readily absorbed the products of decomposition than would have occurred in an ordinary case. After the escape of the first clot the lochia became most offensive. The rash appeared in my case first on face and wrists, but it was certainly more abundant afterwards under the binder and on the back. The fact of its reappearance on the 24th, and the patient having had measles previously, puts that disease out of court. There is no mention of desquamation following any of the cases recorded by Dr Mackness—in this one it was very general.

Seeing the paper read by Dr Mackness before the Edinburgh Obstetrical Society in last month's Journal, I thought that the notes of another of these cases, which certainly seem uncommon, might prove interesting to some of your readers.—I remain, dear Sir, your obedient servant,

CECIL A. P. OSBURNE.

Part First.

ORIGINAL COMMUNICATIONS.

I.—MEDICINE AND QUACKERY.¹

By JAMES ALLAN GRAY, M.A., M.D., F.R.C.P. Ed.

STUDENTS OF MEDICINE.—A year ago, in this Hospital I first addressed you. On that occasion, as you had met here to begin your first course of clinical medicine, I chose for my theme "The Uses and Methods of Clinical Instruction." In that prelection I tried to show you the importance of a knowledge of clinical work, and during the past year I have with the aid of my colleagues of the staff endeavoured to impart to you something of that knowledge. Remembering these facts, and knowing that your work here is but barely begun, I might have contented myself now with telling you in other words what I told you a twelvemonth ago. But while in effect giving this recapitulation, I mean to-day to sketch to you very briefly the condition of our art in former times. For in doing this I can tell you something of charlatanry in medicine, and give you thereby a caution against the abuse of that knowledge which you have already acquired.

The history of the early days of the healing art is now exceedingly misty, as from the nature of things it might be expected to be. But partly from the direct statements of ancient authors, and partly from occasional references in their writings, we may build up some beliefs on the subject. From these it would appear that the practice of medicine was a late art. Nor was it in any nation, so far as I know, followed in the first instance as a separate calling. Among all ancient peoples (as among the semi-civilized of to-day) the functions of the doctor were associated with those of the priest or king—mostly with those of the priest. But in a state of semi-barbarity the work of the healer would naturally be neglected in favour of the more important rôle of the vates, or civil ruler. Thus medicine would languish unless perhaps when some man of mark was sick. Yet even in that case the prophet and diviner would possibly be in as much request as the physician. Of this, indeed, Herodotus (Book iv. c. 68) gives us an illustration in the procedure adopted during the illness of the Scythian king. Who then the first quack was, and what he said, and what he did, are

¹ A lecture delivered at Leith Hospital on 16th October 1888, as introductory to the second course of Clinical Medicine in connexion with the Edinburgh School of Medicine for Women.

matters not easy to determine. They are written of in no chronicle extant. Nor can we imagine that they have found or shall ever find an historian; for from what we know of it the practice of medicine in these early days must have been very primitive indeed. And as even in the hands of the orthodox, medicine was wonderfully halting and impotent, we must be slow to regard any single man of old as more of a charlatan than his neighbour. But to our history.

THE ASSYRIANS, we learn, had no regular medical faculty. Yet they must have had some acquaintance with sanitary science. For Sennacherib, in detailing his improvements at Nineveh, tells us on one of his inscriptions:—"As to caring for the health of the city by bringing streams of water into it, and the finding of new springs, none (of the kings my fathers who went before me) turned his thoughts to it, nor brought his heart to it. Then I, Sennacherib, king of Assyria, by command of the gods, resolved in my mind to complete this work, and I brought my heart to it. By my care I caused the uprising of springs in more than forty places in the plain. I brought down the perennial water of the river Kutzuru from the distance of half a kasbu ($3\frac{1}{2}$ miles) into reservoirs, and I covered them well. Of Nineveh, my royal city, I greatly enlarged the dwellings. Its streets, I renovated the old ones, and I widened those which were too narrow. I made them as splendid as the sun."—(From Bellino's Cylinder in *Records of the Past*.)

From which it will be seen that the mighty Assyrian was a devout man according to his lights, and furthermore recognised the benefits of an ample water supply. This water question must have always been an urgent one to Easterns. The ancient Persians, we learn, were specially careful of the purity of their rivers (Herodotus, Book i. c. 138). And the Moabite stone, which contains the oldest specimen of alphabet writing in the world, tells us in king Mesha's words, after his description of the building of Karkha (believed to be the Sion of Dibon, the Moabite Jerusalem), "And there was not a cistern inside the city in Karkha. Then I spoke to all the people:—Make each a cistern in your houses" (Ragozin's *Assyria*, p. 216). In the case of Sennacherib, this water question may possibly enough have been pointedly brought home to him by the results of his disastrous campaign against Judah. For at the instance of the good king Hezekiah, "there were gathered much people together, who stopped all the fountains, and the brook that ran through the midst of the land, saying, Why should the kings of Assyria come, and find much water?" (2 Chronicles xxxii. 4).

THE BABYLONIANS, according to Herodotus (Book i. c. 197), had no physicians, but were content to let the sick of their nation be carried into the market place, to be there advised of cure by those who had had experience of like ailments. "And," says he, "the

people are not allowed to pass by a sick person in silence without inquiring into the nature of his distemper."

But coincident with this neglect of physic proper among the Babylonians was the attention given by them, as by other nations, to magic and divination—the confrères of medicine in early times. Notice of this is taken by Ezekiel. "The king of Babylon," says he (Ezekiel xxi. 21), "stood at the parting of the way, at the head of the two ways, to use divination; he shook the arrows to and fro, he consulted the teraphim, he looked in the liver."

THE EGYPTIANS, on the other hand, so precocious in many things, had acquired a knowledge of medicine at an early date. Their priests knew more of our art than any of their contemporaries. They had even advanced to specialism in the treatment of disease. "The art of medicine," says Herodotus (Book ii. c. 84), is so practised in "Egypt, that there is found an individual healer for each individual ail. Hence the whole land is full of healers. Some take charge of disorders of the eyes, others those of the head, others those of the teeth, others those of the abdomen, and others internal diseases." Whether this specialism arose from scientific or from magical considerations we have no means of knowing. Certainly the Egyptians placed each of the limbs and organs of the body under the care of a god, and the priest-physician specialist of the part may have been accredited with possessing some peculiar influence with the corresponding deity. However this may be, we have in Egyptian therapeutics "an interesting combination of practical and magical remedies. The practical recipe might contain nitre, or cedar chips, or deerhorn, or various other ingredients administered in ointments or drunk in beer, but with this the magical formula was also required to deal with the demon cause of the ailment. Thus, an emetic was given with the following formula,—'O Demon, who art lodged in M., the son of N! Thou whose father is headsmiter, whose name is death, whose name is cursed for ever, etc.'—(*Encycl. Brit.*, 9th ed., art. "Magic.")

But, specialist or not, the Egyptian physician was bound to observe the laws written in the six sacred books of Tot. "He is not allowed," says Aristotle (*Politics*, Book iii. c. 15), to alter the "mode of cure prescribed for him by law until after the fourth day"—unless, of course, he does it at his own risk. The Egyptian practitioner must, accordingly, have been very much hampered by those laws. Yet the observance of them would at least protect him from punishment, if the recovery of his patient did not follow the treatment he used. So that after all he could not very well complain. For in those days reward by result was pre-eminently the custom,—a practice which must have had a salutary effect in checking medical heterodoxy then, and need not be altogether discarded now.

But the influence of Egypt on the civilisation of the surrounding nations was far reaching. As her intercourse with the Hellenes became pretty close these prohibitory Egyptian laws

would become known in Greece. To this familiarity with the learning of the Nile priests it may not be out of reason to attribute the existence of those laws of the Asclepiadæ which enjoin caution in the undertaking and treatment of dangerous illnesses. Others of these laws were no doubt etiquettical, like the similar but unwritten observances of our times. While yet a third set, interdicting the sale and administration of poison, was clearly directed against the irregular practitioners of the day, "particularly the agurtæ, itinerant mountebanks or pedlar priests, as Plato calls them, who went about imposing on the unwary, and cheating them by lying prophecies" (Watson, *Medical Profession in Ancient Times*, p. 43).

Before taking leave of the Egyptians, we may note that their skill in surgery can hardly have been in keeping with their reputed knowledge of medicine. For although they had in use drugs—nitre, to wit, and the sea-onion steeped in vinegar (our *Acet. scillæ*)—whose medicinal activity warrants their retention in our pharmacopœias, there has been no discovery of any surgical instrument dating from ancient Egypt.

PERSIA of old appears, like Assyria, Babylonia, and other Eastern States, to have had no native doctors, if we except the Magi with their very restricted medical knowledge. Persia was, therefore, dependent for medical aid on foreigners. The Persians of those days, however, were very ready to adopt foreign manners (Herodotus, Book i. c. 135), and to profit by foreign assistance. So we read that Cyrus, the Persian, sent to Amasis for "the best oculist in Egypt," and Egyptian physicians must have thereafter, at least, if not previously, practised in Persia; for when a few years later Darius dislocated his ankle, it was the Egyptian doctors of his household who were called in. "But they by twisting the foot and using force made the evil worse; and from the pain which he felt, Darius lay seven days and seven nights without sleep" (Herodotus, Book iii. c. 129). On the eighth day, however, Democedes, the Crotonian, was brought from prison to attend the king, and he, "by using Grecian medicines and applying lenitives," procured Darius sleep, "and in a little time restored him to health" (*Ibid.* c. 130). Perchance the specialist who took charge of dislocated ankles may not have been present at the Persian Court. Or possibly the Greek, from his acquaintance with the accidents of the Palestræ, may have had more experience of surgery. For though Democedes' lack of instruments at Ægina is a matter of history, and we can hardly suppose him to have had his professional armamentarium with him in a Persian prison, he must have been a better surgeon without his instruments than the Egyptians who had never possessed any. This success of Grecian surgery, followed as it was by Democedes curing a tumour of the breast of Atossa, wife of Darius, led to the appearance at the Persian court of Greek physicians, among whom we find Apolonides of Cos and Ctesias of Cnidos.

Although ignorant of medicine as a practical art, the ancient Persians have been credited with some knowledge of anatomy, on the strength of the story which Herodotus tells of Cambyses, the son of Cyrus. According to that account Cambyses, who had been from birth a sufferer from the sacred disease (epilepsy), developed an attack of mania. While in that state he learned that the Persians doubted his mental stability. To prove his sanity he, madman-like, challenged his own ability to send an arrow into the heart of his youthful cupbearer then standing at some distance apart; for in this way his perverted reasoning sought to make the accuracy of his archery a test of the soundness of his mind. When the boy fell, the examination ordered by the king revealed the arrow fixed in his heart.

THAT AMONG THE HEBREWS there were physicians we may gather from the frequent references to them in Scripture. Likely enough they were priests as well. In which case this would not be the only custom or belief that the Jews had brought with them out of the land of Egypt. Moses himself being learned in all the learning of the Egyptians—no ignoble training truly—must have possessed some acquaintance with physic in addition to his sanitary attainments. Certainly Elijah and Elisha combined the office of healer with those of priest and prophet. If this union of offices held good throughout the land, we might argue, from the frequent mention of false prophets in Scripture, that Palestine in those days must have been a rich pasture for quacks, did we not remember that, then as now, good physic may be associated with bad theology, and *vice versa*.

MEDICINE AMONG THE EARLY GREEKS had the honour of being regarded as one of the accomplishments of its greatest heroes. Achilles and Machaon are specially referred to in the *Iliad* as surgeons, and Æsculapius is half a god. Through them the Greeks traced medicine back to the gods, as through others they traced other arts back to divine origin. It is odd, however, to note, as Celsus does, in connexion with Homer's account of Podalirius and Machaon, that though they were regularly employed in extracting darts and healing wounds, they were not consulted during the plague in the Grecian camp. The treatment for that consisted in an appeal to the gods. A god-sent illness had to be met by a god-sent cure!

But it is in the early schools of philosophy, and more especially in the Asclepia (which were temple, hospital, and medical college in one), that we find the first beginnings of true medical knowledge among the Greeks. Democedes, the curer of Darius's ankle, belonged to the school of Pythagoras, and therefore flourished a century before Hippocrates, who was himself an Æsclepiad of the temple of Cos. It is not my purpose in this brief sketch to trace in detail the history of medicine, or I should now feel called upon to deal with the views of the rival schools of Cos and Cnidos. Suffice it to say, that they were both entirely orthodox, and that while the Coans looked

chiefly to constitutional conditions or states of the system, the Cnidians devoted their attention to particular diseases. But beside these rivals, heterodoxy had already reared its head. Some of the self-imposed laws of the *Æsclepiadæ*, as I have before shown, were directed against this. Of the quackery of his time Hippocrates, while lamenting the ignorance of practitioners, says:—"The mistake appears to me to arise principally from this, that in the cities there is no punishment connected with the practice of medicine, and with it alone, except disgrace, and that does not hurt those who are familiar with it. . . . So also physicians are many in title, but very few in reality."

Shortly after this time we read of one Petronas who treated fever patients by overloading them with clothes, so as to increase their heat and thirst,—a practice of the *similia similibus curantur* type, which should commend itself to a later-day sect.

Nor is it my purpose to follow the fortunes of medicine among the brilliant writers and teachers of the *Alexandrian School*. Volumes might be written on Herophilus or Erasistratus, on Serapion or the Apollonii, or on Heraclides of Tarentum. But wishing, as I do now, rather to emphasize the quackery of medicine, shall I not rather point to Pamphilus, who describes how amulets, charms, and incantations may be made to increase the medicinal efficacy of herbs? And shall I not rather call attention to the anticipation by the Alexandrian doctors of the ceremony of the royal touch—a courtly flattery offered by them to the Emperor Vespasian? About this time also appeared the *mithridaticum*, a confection which enjoyed a generous recognition in olden times as an antidote against poison. This compound, which owed its name and reputed virtues to Mithridates, king of Pontus, a royal dabbler in pharmacy, was believed to have enabled him to escape the effects of poison. As it consisted of twenty leaves of rue, a few grains of salt, two walnuts, and a couple of dried figs, taken in the morning fasting and followed by a draught of wine, it had at least the virtue of comparative harmlessness.

AMONG THE EARLY ROMANS medicine was in a very backward state. In nothing do we see this better than in the means they adopted for treating the epidemics which from time to time visited the city. These ailments were fevers of a severe and fatal type, due apparently to the malaria of the Roman marshes. But being ascribed to the anger of the gods, these inflictions were naturally treated by superstitious rites. So the people performed the ceremony of the *lectisternium*, which consisted of laying out the statues of certain gods and feasting them. They consulted these dreaded oracles the Sibylline books, from which they learned that the worship of *Æsculapius* must now be removed to Rome,—and nothing too soon, one should think. On another occasion, in their dire need, they even had recourse to the ancient custom of driving a nail into the wall of a temple. But all without avail, for the

fever continued. Then Martius Curtius, a noble Roman youth, propitiated the gods' manes, and saved his country by leaping, armed and horsed, into the yawning pit which had opened in the Forum, and which, we are told, immediately closed over this living sacrifice.

Yet, in spite of Rome's intercourse with Greece, medicine made slow progress in the Italian capital. Even so late as 160-150 B.C. we find Cato the Censor (*De Re Rusticâ*, c. 160) advocating very primitive therapeutics, and employing charms to aid his surgery. For curing a luxation of the hip he advises us to split in the middle a green divining rod, four or five feet long, and to let two men hold it at the hip while singing, "*Motas vœta daries dardaries astataries dissunapiter*," until the injured parts are united. This they are to repeat daily, or if they choose they may say, "*Huat, hanat, huat ista pista sista dominabo damnaustra*," or "*Huat, haut, haut, ista sis tar sis ardannabon dunnaustra*."

Within the next century, however, the advance of medicine in Rome was very rapid, and the status of the practitioner improved correspondingly. Still later, under the Empire, the profession as a whole received important privileges and exemptions, and many of its members rose to rank and opulence. But success provoked imposition, and so the profession became crowded with men of gross ignorance and great presumption. The existence of these charlatans and the wrangling of the rival sects of Dogmatists, Empirics, Eclectics, Methodists, Sceptics, Essenes, Gnostics, and Cabalists, soon brought medicine once more into contempt. At how little the profession of that time was estimated we gather from the contemporary satirists,—

“ Quot Themison aegros autumnno occiderit uno ? ”

asks Juvenal of even the man who was, possibly, least a quack of all the physicians of his day. The Essenes, Gnostics, and Cabalists, of whom I have just spoken, were supporters of Christianity. But to the pure and beautiful doctrine of their professed faith they added the grossest superstitions. These Essenes believed in Æons (some sort of demons), and, like the Gnostics and Cabalists, attributed powers of a supernatural order to numbers and to words, especially when these were written on parchment or engraved on stones. These views they supported by the argument, that as words were the direct gift of God to man, the Deity was to be propitiated by signs and symbols, especially by words of the most ancient languages (*Meryon*, vol. i. p. 68). Hence, of course, the double triangle interlaced, which was supposed to indicate the symbol of the sacred name of God, was by them regarded as a figure of such miraculous power that by it, indeed, almost any cure could be performed.

From this time onwards for many a century the history of medicine is one of fanaticism, superstition, or imposture. Now

and again, no doubt, we see an Asclepiades, a Celsus, or a Galen trying to light the darkness, but the lamp they burn merely makes the surrounding blackness more profound. Time is not given me now to trace, in detail, the various superstitions which prevailed during these centuries. Were it otherwise, one could afford you some interesting information on the first beginnings in ancient times of the pet quackeries of our own day. Let me, however, say a word or two on this subject. Some time ago metallic tractors and magnetic appliances were all the rage. Well, Aëtius in the fifth century reports that "they say that those afflicted with gout in the hands or feet, or with convulsions, have their pains settled by holding a magnet in their hands" (*Meryon*, vol. i. p. 102). We know what homœopathy was and is. Yet Pope Gregory I. tells us that "the manner of medicine is such that cure follows the administration sometimes of like substances, sometimes of unlike" (*Ibid.*, p. 114).

Nor do I intend to trace the progress of medicine either among the Saracens—to whom we owe the beginnings of chemistry—or later among the Schoolmen. Suffice it to add that, as my purpose to-day has been rather to deal with quackery, I shall pass over all intermediates, and come now to Paracelsus, with whom I shall close the historical part of this lecture. This wonderful man, born near Zurich in the year 1493, has been by his own and by all succeeding ages regarded as the type of a quack. His real name was Philippus Aureolus Theophrastus Bombastus von Hohenheim, but this, in accordance with the custom of his time, he discarded in favour of the shorter title of Paracelsus. His life was exceedingly stormy and troubled. The son of a practitioner of medicine, he spent his earlier years, according to Sprengel, in the company of conjurors, magicians, and alchemists, and his youth in the society of quacks, crones, and gipsies. Thereafter he roamed about the Continent, visiting many universities, of which he asserted he was a leading ornament, but of which, unfortunately, he neglects to give the name, and returned the reputed possessor of a degree to which the records of no university testify. During these peregrinations he declares himself to have associated, not only with physicians, but with surgeons, barbers, old women, conjurors, and chemists,—an odd list, surely,—and to have extracted the profoundest knowledge from these unpromising receptacles.

On his return to Basel he was made professor of physic and surgery in the university. But this post, after a quarrel with the magistrates of Basel, he subsequently forsook in favour of his former wandering life. The chief points of his character seem to have been his intense egotism, his ignorance, and his irregular habits. As illustrative of the egotism, we have him burning the works of Galen and Avicenna in his class-room, and solemnly asserting that his own shoe-strings possessed more knowledge than these physicians, while the hairs of his beard, he said, were more

learned than all the universities and the writers therein combined. Of his ignorance we need entertain no doubt, when we find him boasting that he had not opened a book for ten years, and remember that his library consisted of nothing more scientific than a Bible, a Concordance, a New Testament, and the Commentaries of St Jerome on the Evangelists (*Sprengel*, vol. iii. p. 290).

His advertisement, as it is called, which we find in the preface to his *Paragrammi*, is a singular document. "Me, me, you shall follow," he says, "you Avicenna, you Galen, you Rhazes, you Montagnana, you Mesua! I shall not follow you; you shall follow me! You, I say, you inhabitants of Paris, you inhabitants of Montpelier, you Suevi, you Miomians, you inhabitants of Cologne, you inhabitants of Vienna,—all you whom the Rhine and the Danube nourish,—you who inhabit the islands of the sea, you also Italy, Dalmatia, Athens, you Greek, you Arabian, you Israelite—I shall not follow you, but you shall follow me," etc., etc.

From all this bombast, however, there was good to accrue. Paracelsus appears to have known something of the actions of antimony and tin as well as of mercury and of opium, for he used them liberally, and this too when these were almost unknown to his contemporaries. But it was especially by his calling attention to the neglect of chemistry that he has been of service to the world.

As to his habits, they were in singular contrast to the character of the books which constituted his library. He became at length a drunken sot, and, like most illiterate egotistic men, he was ostentatiously irreligious. One extremely impious incident is recorded of him. On that occasion, "when summoned to the bedside of a patient, he inquired if the sick person had taken anything. 'Nothing,' was the answer, 'except the body of our Lord.' 'Since then,' said he, turning on his heel, 'you have called in another physician, you do not want *my* presence.'"

I have thus reviewed briefly the condition of our art in former times, and have noted for you the earliest records of quackery. It now remains to ask your attention to the causes of the latter. Stated briefly, these seem to be the credulity of man, and man's desire for aid in sickness. To these we may add the two considerations that many men naturally revolt against all law, thus preferring heterodoxy to orthodoxy, and that quackery, to be even temporarily successful, must contain some particle of truth.

First, then, as to the credulity of man. Man has been variously defined,—now as a thinking animal, anon as the only animal who laughs. The old Greek philosopher described him as a featherless biped, a definition which, as pointed out to the definer, embraces equally well the genus homo and a trussed fowl. But for our purpose the most appropriate definition is that of Southey, which regards

him as a dupeable animal. All animals are more or less capable of being deceived. But man is especially so, owing to his being endowed with imagination. He is consequently superstitious at heart, and, until educated in the laws of Nature, attributes readily to supernatural powers what is the outcome of perfectly intelligible natural causes. This we have already seen in regard to the marsh fever of the Greeks before Troy, and in the epidemics of ancient Rome.

How the priest physicians of old magnified their office, and kept men in ignorance of what little they know of our art, we can readily imagine. With this Aristophanes, the Greek poet, deals in his comedy of *Plutus*. I shall quote you the passage as illustrative of the procedure in treatment at an asclepion. The preliminary purification of the patient, the vigil in the temple hall, the hissing of the steam from the earth, whereby the patient was by the god to be informed of the method of cure, and the appropriation of the free-will offerings by the priests, being all charmingly touched on, while the whole scene is illumined by the irreverent, practical selfishness of the servant Cario, who is the speaker. "Having bathed Plutus in the sea," says this servant, "we went to the temple of Æsculapius, and when our wafers and preparatory sacrifices were offered on the altar, and our cakes on the flame of Vulcan, we laid him on a couch, as was proper, and prepared our own mattresses. . . . When the priest had extinguished the lights, he told us to go to sleep, adding that if any of us heard the hissing we should by no means stir. We therefore all remained in bed, and made no noise. As for myself, I could not sleep, on account of the odour of a basin of savoury porridge which an old woman had at the side of her bed, and which I longed for amazingly. Being, therefore, anxious to creep near it, I raised my head, and saw the sacristan take the cakes and dried figs from the sacred table, and, going the round of the altars, put all that he could find into a bag. It occurred to me that it would be meritorious in me to follow his example, so I arose to secure the basin of porridge, fearing only that the priest might get at it before me. . . . The old woman on hearing me stretched forth her hand; but I hissed, and seized her fingers with my teeth as if I were an Æsculapian snake; then drawing back her hand again she lay down and wrapped herself up quickly . . . while I swallowed the porridge, and when full retired to rest."

That superstition should have been prevalent in the past is quite to be expected; but one is hardly prepared for the ridiculousness of Sir Kenelm Digby's remarks on the power of sympathy:¹—"One would think it were a folly that one should offer to wash his hands in a well-polished silver bason wherein there is not a drop of water, yet this may be done by the reflections of the moonbeams only, which will afford it a competent

¹ Pettigrew, *Superstitions in Medicine and Surgery*, p. 80, et seq.

humidity to do it; but they who have tried it have found their hands after they are wiped to be much moister than usually; but this is an infallible way to take away warts from the hands if it be often used." Of a truth this demonstration of the power of sympathy is one method of "washing the hands with invisible soap in imperceptible water."

Warts, for whose cure this mummary is prescribed, are peculiarly liable to spontaneous disappearance, a characteristic which they have in common with a number of diseases whose origin is in the nervous system. Hence they offer a fertile field for the charmer. Many of these old wart specifics were specially unpleasant. One of the least so is that the wart be rubbed with a piece of meat which has been stolen from a butcher's shop and thereafter buried. As the beef rots the wart will decay. One of the many charms for the arrest of hæmorrhage was, we are told, the jasper stone, and this because of its blood-red colour. Here, of course, was an illustration of the theory of signatures, a theory which maintained that everything indicated by its external appearance or signature the medicinal virtues which it possessed. On this ground the black dot of the corolla of the *euphrasia* pointed to the plant as an excellent remedy for diseases of the eye. Did this theory of signatures hold good, the practice of medicine would be vastly simplified, though there might always be the difficulty of interpreting the signs. But, unfortunately, medicine is not a Persian king—the happy possessor of a royal road.

Indeed, it would appear as if the efficacy of these old charms and cures depended on the difficulty experienced in applying them. The more unpleasant they were, and the more repulsive their ingredients, the greater apparently was their potency. At least we cannot help thinking this, when we find in the composition of these specifics, toads, vipers, wasps, spiders, scorpions, newts, halters of malefactors, and moss from dead men's skulls. Of these the toad was found very efficacious. It formed a charming styptic, and certainly if its action was owing to the production of nausea, it may not have been altogether inert. Living or dead, the toad stopped bleeding at the nose when applied to the nape of the bleeder's neck. Pounded up in powder (*Bates' Pharmacopœia* gives the formula under *Pulvis Æthiopicus*) it was given internally and applied externally for dropsy, for smallpox, and for other diseases. In fact, the toad was about as omnipotent as a later-day patent pill. Yet it might fail after all, and then the medicine man (one cannot call him a doctor) would have to try something else. For instance, it might not cure the sting of a scorpion, in which case the patient could be made to seat himself on the back of an ass with his face to the tail; for *Pierius* tells us that in that position the pain will be transmitted from the man to the beast.

But however pleasant it may have been to cure disease by such wonderful nostrums as the above, it was surely more to the point

to prevent it. This our forefathers believed they could do by the use of amulets. These, as the name indicates, were things *suspended*, generally round the neck, like the camphor-loquets of the present day, and were, therapeutically, about as efficacious. In their nature they varied infinitely. Now, the amulet was a gem, then a shell, a coin, a piece of coral, a portion of the metals, a lump of clay, a bunch of feathers, rags,—in fact, anything whatever, and the more out of the way the better. Scraps of parchment covered with writing were favourite amulets. To this class belong the

ABRACADABRA
BRACADABR
RACADAB
ACADA
CAD
A

charms, whose virtue chiefly lay in the arrangement of the letters.

But whatever it may have been in former ages, we should hardly expect superstition to be very rampant in our days. Yet do the following prescriptions, given a few months ago by a certificated midwife practising in one of the Western Hebrides, differ materially from the nonsense of 200 years ago? "If the baby," says she, "is ill and not thriving, take a cat by the four feet, swing it round the infant several times, then throw it out of the hole in the roof for letting out the smoke; if it is a black cat, or if the house has a chimney, then throw the cat out of the window. If the cat dies the child will live, because the witches or brownies have left the child and gone into the cat. If the cat does not die, then the child will." The other recipe, which is for older children, is simpler of execution:—"Take a piece of gold and put it into a dish, pour water on to the gold, then sprinkle the water over the children that are sick, and immediately they will begin to recover" (*Christian Leader*, June 1888). I fear that little of the gold would get into the water, and less into the children. But the story reminds us of the ancient belief, that "gold is a specific against all diseases of the heart, because in the mystic scale it is in harmony with that viscus." Those who understand these matters tell us it has not quite lost that harmony yet.

Another reason for the easy dupeability of man is the tendency to self-deception. Especially it is so when "the wish is father to the thought." Thus can we account for cures by faith. For physiologically regarded the faith-cure is due to the stimulus of imagination acting on the nerves of the affected parts. Of course the illness, which is cured by faith alone, can be of no gross physical nature, since no man by taking thought can add a cubit to his stature. But upon this principle of the imagination almost persuading the sick man to be well depends the success of the coloured water and bread pills of pharmacy, and of the globules

of homœopathy when honestly prescribed. I say *honestly prescribed*. For we find at times a reputed homœopath giving doses, which as to their quantity would gladden the heart of a hardy allopath of the old heroic school. So also upon this effect of imagination depend the medical results of many quack medicines. I should be slow to regard as fraudulent all the written testimony in favour of these nostrums. But I do deny the ability of most of the writers to refer the results obtained to the correct causes. What, may I ask, does the non-medical world know of the sudden rise or fall of the pulse or temperature, what of the sudden appearance or disappearance of the cough, the perspiration, or the critical discharge which we know to accompany "crises" in disease? How can those unskilled in the natural history of these matters be competent judges of cause and effect in regard to drugs? Is the improvement which follows the taking of any drug always the result of the drug's action? I trow not.

On the other hand, this explanation of how quack medicines act does not meet the whole case. Some, indeed, and these the best of them, are neither more nor less than ordinary aperients. Others are the illegitimate progeny of the prescriptions of our best physicians, and such may be fairly suitable for treating one special class of ails,—in which capacity they may serve their day and generation pretty well, if somewhat dearly. But this restricted use is the only legitimate one for the quack medicine. No matter how universal its pretensions, its action remains the same. It can never become a cure-all, a panacea. Often, indeed, instead of having even this restricted beneficial use, it may be positively harmful, as when used in inappropriate cases.

Of the effect of faith in curing ails we come across occasionally a touching illustration like the following:—An old woman applied to her doctor for the relief of pleurodynia, and received a prescription with the verbal direction to apply it to her breast. Sometime later she returned lauding the advice, and happy in the enjoyment of improved health. As to the prescription, it had certainly enough been "used as directed," for there it was applied to her breast, by being tied round her neck with a piece of tape. Could any charm have done more? Truly her faith had made her whole.

How much those accustomed to deal with disease appreciate the effect of the imagination, and feel honestly called on to reckon with it, the following story of Dr Weir Mitchell shows:—"I once," says he, "expressed surprise in a consultation that an aged physician, who had called me in (to see a sick child with him), should be so desirous of doing something when I as earnestly desired to wait. At last he said, 'Doctor, it is not the child I am anxious to dose, but the mother's mind.'"

This desire to have something done for the relief of sickness, which is our second factor in the maintenance of quackery, has a

powerful influence on the mind of the sick man and his anxious friends. Especially is it so in some races. And if the something done has a touch of the mysterious, so much the better still. As the late Professor Spence, in speaking of the inventors of sympathetic powders, says:—"They saw that for one 'good Hezekiah' who would meekly submit to so simple an application as a 'poultice of figs,' they would meet with a dozen Naamans 'ready to turn away in rage' if there were not 'some great thing done.'"

Moreover, it is this desire to have something done which contributes largely to afford the quack his occupation. For though "a little knowledge is a dangerous thing," the man who has no better quality than the effrontery necessary to offer himself as an adviser will in times of need be accepted. Circumstances aid in the development of quackery as of other characteristics. To parody Shakespeare's words on greatness, we may say:—

"Some men are born quacks,
Some men grow quacks,
And some have quackery thrust upon them."

Often, however, as in the case of Paracelsus, quackery is dependent upon the charlatan possessing information greater than his compeers, but using this information illegitimately. Not that I should counsel an explanation being given to every one of all our medical doings. There is "a time to keep silence, and a time to speak." Indeed, a little extra knowledge of natural phenomena may at times extricate one from difficulty or danger. It is told of Columbus that he once procured for his ships provisions which had hitherto been refused, by pointing to an eclipse of the moon as an evidence of the wrath of God at the conduct of the savages. No doubt the morality here was dubious, but possibly the end warranted the means.

It is a far cry from the long haired priestly fanatic and astrologer of the past to the patent-medicine gentleman of the Victorian era, sitting in broad cloth in his sanctum, writing cunning puffs for universal panaceas. But the methods of the two charlatans are one. Compare the latest patent medicine advertisement with the bombast of Paracelsus. Is there much to choose between the 19th century quack and his prototype of the Middle Ages? Certainly the later-day man is a little more polished as becomes his time. Perhaps, too, he has the best of it in indicating in a refined way just a little weariness at the work which his genius and discoveries have thrust upon him,—since the labour of answering the numerous letters in all languages which come to him from lands beyond the sea, could only be maintained by one whose motive power was the good of humanity and the medical regeneration of the world.

Yet in everything there is some divine spark. Nothing is

altogether bad. From our errors we learn. The heterodoxy of one generation, it is said, becomes the orthodoxy of the succeeding. Thus, out of Paracelsus's pretensions grew the study of chemistry, and from astrology sprang astronomy, while the search for the philosopher's stone disclosed the beginnings of many of the arts. In later days the absurdities of homœopathy have led to the revival of the sadly-neglected study of dietetics.

How medicine at one time fraternized with astrology we may guess from the influence which the stars still exert on the nomenclature of disease and drugs. Do we not speak still of lunacy and lunar caustic, of mercury and saturnine palsy? How essential it was for the Middle-Age physician to be versed in the stars, we learn from the

"For he was groundit in astronomie"

of Chaucer's sharply lined, but not altogether too flattering picture of the "doctor of physik" in his Prologue to the *Canterbury Tales*.

The training for the practice of medicine has been much removed in different times and circumstances from the scientific method now in vogue. Among some peoples the requirements have chiefly consisted in the acquisition of long hair, a gaudy dress, and a guttural grunt. Possessed of these and of plenty of self-confidence, and adopting the solemnity of an owl, and the utterance of an oracle, the medicine man was complete as to outfit and education. Among other nations, for example among some of the Indian tribes of North America, the education was similarly scanty, but the initiation to the doctorship was by ordeal, and a revolting process it was.

How the preparation went at Salerno in the early Middle Ages let Longfellow's scholar tell:—

"Second Scholar.

And what are the studies you pursue?
What is the course you here go through?

First Scholar.

The first three years of the college course
Are given to Logic alone as the source
Of all that is noble, and wise, and true.

Second Scholar.

That seems rather strange, I must confess,
In a medical school; yet, nevertheless,
You doubtless have reasons for that.

First Scholar.

Oh, yes!

For none but a clever dialectician
Can hope to become a great physician;
That has been settled long ago.
Logic makes an important part
Of the mystery of the healing art;

For without it how can you hope to show
 That nobody knows so much as you know?
 After this there are five years more
 Devoted wholly to Medicine,
 With lectures on Chirurgical lore,
 And dissections of the bodies of swine
 As likest the human form divine."

— *Golden Legend.*

This college at Salerno was the first at which, after a regular curriculum, diplomas in medicine were granted. To this course several royal personages repaired, and, what has possibly more interest for you, to it female students were admitted. As to graduation, we are told of the aspirant that "A book was then put into his hands, a ring upon his finger, and a crown of laurel upon his head, when he was dismissed with a kiss from the learned doctors" (*Meryon*, vol. i. p. 165). It is, however, not said that this programme was carried out in its entirety in the case of the female students.

Just as training has been diversified, so has treatment been. In the past our forefathers trusted much to their superstitious rites. In more recent times we have had hydropathy, acetopathy, eclecticopathy, faith cures, mountain cures, homœopathy, metallic tractors, magnetic belts, mesmerism, and such like. However, as summarizing what may be said on the different ways of healing disease, let me cite you Moxon's division of the "pathies," which is into sympathy (let me do something for you), apathy (do that if you like), and antipathy (get thee, hang).

Directing now our attention to the quack himself, we find him of two kinds—the legally qualified and the legally unqualified. These have much in common. Both have the same implicit self-confidence and unblushing effrontery, the same easy assurance and elastic recoil after defeat. Both have the same quickness of wit in emergencies, and the same ability to send an arrow through the joint of an opponent's armour. Both have some knowledge of the healing art, and a great knowledge of the world; for the foibles of the multitude are the instrument on which the charlatan plays. Then he may boast himself as the seventh son of the seventh son, or perhaps as the fortunate owner of some reputed medical secret, erstwhile the possession of fanatical hermit or credulous crone. Of course his knowledge of drugs may be on a par with that of the Chinese doctor, who uses the heads, stems, and roots of plants to cure the heads, bodies, and legs respectively of his patients. Possibly he may prescribe rosemary for the improvement of memory, because his forefathers put it in their ale to keep their remembrance good when their libations were plentiful. True, he may evince a belief in the doctrine of signatures, or feel constrained to hold with Burton (*Anatomy of Melancholy*, p. 456), that "pæony doth cure epilepsy, precious stones cure most diseases, and that a spider born with one helps the ague." But what of that? Is he

not the party in opposition to medical orthodoxy, and deserving of sympathy and patronage as the ill-used victim of a powerful and unscrupulous guild?

Of the uneducated charlatan the best common example in North Britain is the bone-setter, an ignorant worthy whose study of bones is at best conducted like the practical anatomy at Salerno. But he has learned that stiffened joints require free movement, and acting on this, he often attains the end which an otherwise more skilled man misses; for the astute quack refuses to treat a case which is not likely to bring him credit, assigning as a reason, not the nature of the ailment, but the tardiness with which it has been presented to him. Of course the doctors who have seen the case have bungled it—that goes without the saying.

Little time is left me to speak of the qualified charlatan—

“A potent quack long versed in human ills,
Who first insults the victim whom he kills,
Whose murd’rous hand a drowsy bench protect,
And whose most tender mercy is neglect.”

To what low level the presumably learned doctor may descend, we see in our medical brother of last generation, who, Paracelsus-like, so far forgot what little Latin he had ever known as to apply to a druggist for a supply of *Tinctura ejusdem*. That cunning phrase, he concluded, must represent a drug of some potency, for he had seen it as the second ingredient in the prescription which a physician of eminence had given to a lady of quality. It is not recorded that he got the preparation. But history does tell us that the lady, whose London adviser recommended the *Edax rerum* as the best cure for her ailment, obtained ample supplies of it from her country chemist at 7s. 6d. a bottle.

Now one word. I have tried to show you quackery in some of its aspects. Let me advise you to eschew it in all of them. Be honest in all circumstances. Be truthful. It may be difficult to confess your ignorance or therapeutic powerlessness. Yet do this if occasion demand it, though not rashly or ill-advisedly. If you have learned your art well that confession will be but an acknowledgment of the limit of present human knowledge and present human power. By that confession you may lose at first, may lose later, nay, may even lose almost altogether. But you will gain at last; and, what is beyond all price, you will retain for yourselves the consciousness of honesty of purpose and honesty of deed—a consciousness which is the subjective equivalent of the highest morality, and which, with the faith of our ultra belief, completes our spiritual whole, and until that day “or ever the silver cord be loosed or the golden bowl be broken” constitutes the rock on which our true happiness here must rest.

TRACHEOTOMY IN CHILDREN: WHY UNSUCCESSFUL?

(*A Reply to Dr Thom's Article in the September Number of this Journal.*)

By ROBERT WILLIAM PARKER, M.R.C.S. Eng.

DR THOM, of Crieff, contributed a most interesting and suggestive paper with the above title to the September number of this Journal, wherein he raises the question, which sometime or other may affect every practitioner of medicine and surgery, Why is tracheotomy in children unsuccessful? Every one who has read or who reads this paper must admire the courage with which Dr Thom publishes his unsuccessful cases, and every practitioner who has been called upon to decide the question of tracheotomy in private practice will sympathize with him in his difficulties, and in the discouragement which almost necessarily follows on seven consecutive failures, notwithstanding that these failures could in no sense be attributed to the operation, or to any circumstances over which he (Dr Thom) had any control. I have long taken a very special interest in the subject of tracheotomy in children, and have accumulated a not inconsiderable amount of experience in such cases. After reading Dr Thom's paper, I can only congratulate him on his indomitable perseverance in operating under most discouraging circumstances.

For the reason given by Dr Thom, I think that tracheotomy, now more than ever, is an operation which will be on its trial, and I fear the publication of unsuccessful cases—unless the cause of death be very clearly stated—may be apt to discourage both doctors and the lay public (already sufficiently averse to the operation): as a result there may arise the danger of the operation being still further delayed, when a still smaller percentage of recoveries will be obtained than at present.

Though very illogical, it is usual to speak of a tracheotomy operation as "unsuccessful" whenever the patient dies, notwithstanding the fact that tracheotomy is not in any sense a curative measure against the disease during the course of which it may have to be undertaken. Urgent and painful dyspnoea from which a patient was suffering may have been completely relieved by the operation, and, if nothing else, a quiet euthanasia secured in place of death by strangulation; but the operation, which cannot be expected to do more than this under the most favourable circumstances, is nevertheless said to be "unsuccessful." Are we not rather hard on the operator as well as on the operation?

If we bear in mind the true rôle of this delicate operation, I think we may reasonably assert that tracheotomy is not always unsuccessful even in fatal cases. Which of us has not at some time or other seen a case of severe laryngeal obstruction, acute in onset, in a young, florid, and otherwise healthy looking child. The child's appearance is painfully striking: its breathing is in-

tensely laboured; the staring eyes, instinctively expressive of dread of the suffocation which seems impending, follow us about as we helplessly stand by administering internal remedies or food, every dose of which goes to still further distend the paralyzed stomach and impede the respiration. The parents at last consent to tracheotomy. What an intense and immediate relief follows! how the child falls asleep in quiet acknowledgment, almost before it can be got back into its cot! Does this count for nothing, even if, life having been prolonged, the disease further develop and at last prove victorious? The death which follows is easy by comparison either to suffer or to witness—that is, both for the patient and for the friends. In my experience death after tracheotomy is always free from the terrors which beset acute strangulation. I ask, therefore, whether it is correct to say that tracheotomy is unsuccessful even in fatal cases?

I am the last man, however, to be satisfied with this amount of success, and, like Dr Thom, crave for more material results than euthanasia. Thus far I have secured something over 50 per cent. of recoveries in about forty operations undertaken in diphtheria, mostly of a low asthenic form. Even this result leaves room for considerable improvement. After discussing some of the questions propounded by Dr Thom, I will endeavour to point out the directions in which I shall myself look, and would advise others to look, for more tangible results after tracheotomy in cases of diphtheria (membranous croup). In wading through the immense literature of the subject, I have been struck with the very few deaths that can in any reasonable way be attributed to the operation itself. A very few cases of hæmorrhage, due to an ill-fitting tube ulcerating its way into a large and perhaps abnormally situated bloodvessel; a few cases of cellulitis of the neck, arising probably from hurriedly and perhaps ill-performed operations,—these are all out of many thousand cases! This fact is a corner-stone on which to rest our confidence.

In the following sentence, Dr Thom formulates a text for a number of articles and subjects for discussion, p. 212:—"It would certainly be of infinite value to general practitioners, if we could relegate to tracheotomy its true place in the treatment of laryngeal obstruction in children from acute disease. A mere croupy cough from slight laryngitis is often called croup, and as often easily cured; but true membranous croup seems to me a very terrible and dire disease, and, indeed, my personal experience makes me stand more in awe of it than of diphtheria even, unless the latter is in an advanced stage and in an inaccessible region." As regards the first point:

(a.) The rôle of tracheotomy in laryngeal obstruction. I have long held and acted on the principle that tracheotomy, in its present application, is not a therapeutic measure. It is directed solely

against the laryngeal obstruction, which is not the disease, nor even any essential part of it. In some cases it seems to add a danger to the disease by opening up fresh channels, through which disease-germs and disease-products may be absorbed into the system. It is a measure, therefore, if we would secure its maximum advantages, which is to be applied only in the right cases, only at the right moment, and above all, only by those thoroughly conversant and impressed with its indications, its capabilities, and possessed of the necessary manipulative skill to ensure its performance in a fairly surgical manner.

Unfortunately the complication which calls for tracheotomy affects such a vital function—respiration—that any serious interference with it, even for a short time, is fraught with the greatest danger to life, and quickly leads to further complication (collapse of lung) hardly less fatal than itself, even if it do not kill outright. Such being the conditions, tracheotomy becomes an operation of the greatest moment; it is, however, usually forced on a practitioner, having many other calls on his time, when he least expects or wants it,—on a practitioner, it may be, unaccustomed to surgical manipulations, and not possessing the surgical instinct perhaps. In all respects, therefore, this operation differs from others. Other operations can be arranged for, planned, the time chosen, and adequate assistance obtained. Tracheotomy may be required urgently at any moment, day or night. More important than all, the after-treatment is of paramount importance, and can hardly be carried out efficiently without the nurse in charge has had previous experience and even special training. We must always bear these facts in mind when estimating the *rôle* and the true value and the results of tracheotomy operations. I venture to think that Dr Thom has hardly done justice to his own skill in the remarks with which he follows up his cases. Now as to the second point raised in the passage just quoted:

(b.) The identity or non-identity of “membranous croup” and “diphtheria.” Here I must join issue with Dr Thom, and with all those who regard true croup and diphtheria as clinically distinct diseases. Unfortunately this difference of opinion is of great importance to our patients. It is not merely a question of words between the doctors—of pathological anatomy, or of one man’s opinion against that of another man; something more than this hangs on the decision. It is the keynote to therapeutics, to prognosis, to prophylaxis, to surgical treatment. If membranous croup—true croup—were a mere “laryngeal obstruction,” tracheotomy ought to be far more successful than it is, for in the fatal cases of non-tracheotomized croup, the cause of death is almost invariably strangulation by occlusion of the rima glottidis by false membrane, with or without collapse of lung; other signs of disease are generally conspicuous by their absence. But when death is warded off by means of a timely operation, and the case

nevertheless dies some days later, the true affinities of croup and diphtheria become manifest by the fact that death is the result of like causes in both sets of cases.

As regards the early treatment of diphtheria, I am quite in accord with Dr Thom that (p. 216) "our course is plain, viz., treat the diphtheritic membrane by vigorously destroying it, keep up the patient's strength, and if symptoms of suffocation arise, open the trachea." I am not quite so clear whether the early treatment of diphtheria is always so "eminently satisfactory" as Dr Thom's statement seems to imply.

The early treatment of croup is spoken of as less satisfactory than that of diphtheria; but the nature of this treatment is not very clearly specified. If it includes emetics, I should again find myself at variance with Dr Thom. It is just such a question as this, the use of emetics, which renders it so advisable to determine whether there are any, and what, affinities between croup and diphtheria. In all forms of diphtheria there is a tendency to depression and syncope; all kinds of emetics (some more than others) also produce depression. I especially object to their repeated doses, for the effect is cumulative. The absorbents are inactive while respiration continues impeded; but when tracheotomy sets matters temporarily right, the accumulated doses of the emetic begin to depress the patient, and the disease then makes uninterrupted progress and carries him off.

Is it not a fair question to pose, whether some of the fatal effects of croup which Dr Thom so deplors, and which make him "stand more in awe of it than of diphtheria even" (p. 212), may not be due to the opinion he holds that the two diseases are clinically distinct. Would he feel inclined, for a while at any rate, to throw aside his old belief and treat the two diseases as if they were one and the same. I think the results might be different. Let him act exactly alike in the two cases: local measures in those cases where there are local manifestations, and tracheotomy at the earliest possible moment when symptoms of laryngeal obstruction show themselves, whether local manifestations are present or not. I do not think there is much danger of his mistaking a case of true croup, or of his confounding it with one of false croup. Even if such a mistake occurred occasionally, less harm would result from an unnecessary operation than from overlooking so fatal a disease as, by common consent and Dr Thom's own experience, true croup is known to be.

After recording his cases, Dr Thom asks, and in a measure discusses, the following further questions:—

(1.) Does the fault lie in the unskilful performance of the operation? In the cases related a negative answer will confidently be given. Such a reproach cannot for a single moment be entertained of a surgeon with Dr Thom's experience and

antecedents. Speaking on the question generally, I have little doubt that the manner in which the operation is performed does influence the final result. So much have I been impressed with this view, that now when operating I plunge the knife almost directly into the trachea, thereby avoiding a difficulty which Dr Thom himself briefly adverts to (p. 217), viz., "dissecting quite a hole before I reached, caught up, and opened the trachea." I can hardly doubt that this dissection in the neck, among large and distended blood and lymph vessels, opening up the layers of the deep cervical fascia, and the disturbance of the cellular tissue about the trachea, are so many danger-factors of no mean importance. It will be urged that cutting directly into the trachea (after the skin has been divided) is also a dangerous proceeding. The more I think over the question the more clearly do I see the advisability, there being two evils, of choosing the lesser. If the incision be made *in the median line*, there is practically no danger.

(2.) Was the operation too long delayed? I subscribe entirely to Dr Thom's answer to this question, which was as follows (p. 217):—"I believe in some of my cases it was. Had it been performed earlier, I am of opinion that the patient would have had a better chance of recovery. In this connexion I cannot claim that the value of the operation can be properly judged of from my cases. Undoubtedly the majority of them were within a very short time of the fatal issue had I not operated. The delay was due, not to my own desire, but to the reluctance of the parents and relatives to give their consent, and I felt that I was not justified in very strongly urging them to consent, seeing that I could not from my own experience hold out a very hopeful prospect."

(3.) Were the cases unsuitable for operation? In discussing this point next I am slightly altering the order of Dr Thom's questions. It is, in fact, part of No. 2, because, as it appears to me, the only possible unsuitability that can be urged in the cases under discussion is the very late period at which Dr Thom obtained permission to operate. Only one of his seven cases had any serious complication at the moment of operation, viz., the seventh case, the child, aged 3 years, with whooping-cough. Every case in which laryngeal obstruction is a *prominent symptom* is suitable for operation. I hold it to be a surgical canon, that a surgeon, having the option, or if asked to do so, ought to operate, complications and statistics notwithstanding. Complications will necessarily affect the prognosis immensely, and the surgeon may legitimately point out this fact; but they should not deprive a patient of the comfort as well as of the chance of his life, which tracheotomy affords even at the eleventh hour!

(4.) Was the after-treatment imperfect? This is by far the most important question raised by Dr Thom. I fully endorse all he says on this point, and his regret (p. 218), "that in many

cases it was not what I could have desired. . . . Most of the cases occurred in families who could not afford to pay for a skilled nurse, and would undoubtedly have been removed to a hospital had one been within reach. . . . I feel certain that had some of my cases been in a hospital, or under the care of a trained nurse, the result might have been different. . . . Through ignorance, and the feeling that all treatment was useless, they left off doing as they were directed just when it was most necessary." Have we not in the foregoing quotations the answer to the original question propounded by Dr Thom—Why is tracheotomy in children unsuccessful?

A skilled nurse is quite as essential to success as a good operator or a properly fitting tube; adequate after-treatment is impossible without one. Constant and skilled watchfulness is necessary for the majority of cases, and while just a few cases get well without any one of the foregoing essentials, the main argument is in no way invalidated by these accidental and exceptional cases.

Cases of membranous laryngitis occurring in poor homes, where there is no one but the mother to nurse the child, are almost outside the possibilities of surgical help. All honour to the practitioners who have the courage and the devotion to endeavour to save life or mitigate the horrors of death by operation! The merits of tracheotomy, however, as a surgical proceeding, must not be judged by such circumstances as these, any more than that the merits of ovariectomy should be gauged from a similar standpoint.

There is a strong argument against allowing a mother, even if she possess the knowledge, to nurse her own child when suffering from diphtheria—viz., the danger of becoming affected, of losing her own life, and leaving her family motherless. Members of a family possess a similar constitutional proclivity; membranous croup is known "to run in families," as it is described: this is doubtless due to family proclivity. In hospitals there is far less danger of the disease spreading than in private homes, for the family proclivity is wanting in hospitals. Moreover, moral control is wanting in maternal nursing, and much that is essential is left undone on this account.

There is only one other point in this paper on which I will venture to touch. Dr Thom says (p. 218):—"I would here remark how very strongly I feel that something more might be done than has hitherto been recommended in the way of locally treating the false membrane in the larynx." If he has any views on this matter I wish he had communicated them, for I agree with him in thinking that there is still room for improvement, notwithstanding the progress made in late years. How does this matter stand in his own cases? He relates seven cases, the fatal issue occurring

in each within about three days, more or less, after operation. He says, "After operations I have used various medicaments—lime-water, eucalyptus, compound tincture of benzoin, carbolic acid, salicylic acid, and others—with a view of destroying or dissolving the membrane, but have not found any of them of service." Five named drugs, "besides others," and none of them of any use! Is there some unintentional mistake in this statement—as many remedies as cases?

In such a dire disease as this can we look for very obvious results from so many remedies tried in so many cases during so short a time? Nevertheless, I agree in thinking that success depends largely on preventing the contamination of adjoining parts by the secretions from diseased parts. In all my cases I have endeavoured to accomplish this as thoroughly as possible. Steam containing volatile disinfectants, weak solutions of the alkalies which act as solvents applied in the form of spray by inhalation, boracic acid or iodoform dusted into the larynx and affected parts, the use of feathers, and suction, are among the various measures advocated and practised in many cases with very encouraging success. It is not quite fair to any one of these drugs to say of it that it was "not of any service" because it failed to do good in an individual case; if it fail in twenty cases, state the fact, and try one of the others in another twenty cases. Even then it would be a bold statement, that such and such a drug was of "no service."

But I agree that something more is desirable, and even necessary. I shall hail with pleasure any improvements in this direction from whatever source they come. When writing the above passage Dr Thom must have been unusually depressed, either by the recollection and review of his failures, or by a very creditable regret that his cases, owing to circumstances over which he had no sort of control, had not met with the success a "forlorn hope" so eminently deserves.

Desiderata.—The following are some among the greatest *desiderata* in connexion with tracheotomy in children:—A more precise appreciation among doctors of the exact rôle of tracheotomy in laryngeal obstruction, of its indications, its capabilities, its practice, and the necessary after-treatment. Greater unanimity as to its advantages would soon prevail. Better instruction for medical practitioners, while students, in disease as seen in children, especially the eruptive and contagious fevers, and their after-management. Co-operation among doctors in outlying districts in the matter of trained nurses.

The rural sanitary authorities would do well, in the interests of the sick, of the community at large, and in their own interests, to insist on a provision of adequately trained nurses to attend on the sick poor in their own homes. If circumstances compel a mother to nurse her own child, a trained outdoor nurse, paying visits from

time to time throughout the day, would be of priceless value in such cases as these: a great deal depends on the first twenty-four hours, for the disease may be fairly supposed to be at its height just at the time when operation becomes necessary. Moreover, she could give the mother instruction and personal supervision during her earliest attempts in attending to the tracheotomy tube. Dr Thom rightly emphasizes the value of and need for district nurses, and he indicates that in his own district this need is likely shortly to be satisfied. Here, in such occupations, is an outlet for much female energy and a large field for remunerative occupation. I know of no better, or nobler, or more fitting employment for women than nursing.

III. ON THE EFFECTS OF COMPRESSION OF THE FŒTAL SKULL, WITH SPECIAL REFERENCE TO DELIVERY IN MINOR DEGREES OF FLAT PELVIS.

By R. MILNE MURRAY, M.A., M.B., F.R.C.P. Ed., F.R.S.E., Lecturer on Midwifery and the Diseases of Women, Edinburgh School of Medicine.

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ONE morning some years ago I was asked by two students of the Western Dispensary to see a woman in labour on whom they had been in attendance all night. I found the parts hot and tender, the waters drained away, the head transversely at the brim, and both fontanelles within easy reach. The child was alive, but the woman was irritable and exhausted. The membranes had broken ten hours previously. On inquiry I found that this was her third pregnancy. On the first occasion the child was born dead and premature; on the second, Dr Angus Macdonald had delivered her of a dead child. The mechanism was that of a flat pelvis, and had one seen and recognised the condition at an earlier period, the propriety of turning would scarcely have been questioned. As it was, the wisdom of this form of interference was not so plain. The head was caught in the brim, and the waters had largely gone. Moreover, I had recently produced a modification of the Tarnier-Simpson forceps, and was naturally eager to test their efficiency. I applied the instruments without difficulty, save that the locking was troublesome; the whole length of the fixation-screw was required to give them a hold. The left blade lay right over the occiput, the right over the sinciput, and the occipito-frontal diameter crossed the axis of the instrument at a right angle. When I saw the widely-separated handles, I was impressed by a wholesome dread of the risk of the instrument slipping, and accordingly I commenced traction with caution and circumspection. I had made comparatively slight efforts when, to my surprise, the head began to come down, and in a very

short time delivery was effected. When the head reached the vulva the antero-posterior grip of the instrument was plainly seen.

Shortly afterwards I mentioned the case to Dr Macdonald. He recollected the woman, and had been asked to see her when labour was advanced; had tried to deliver by forceps, but failed; and delivered a dead child by turning. Some weeks later I had in private practice a case of a primipara whose mechanism showed every evidence of a flat pelvis of the minor degree, and in whom I delivered the foetus by means of the axis-traction instrument with comparatively little difficulty. The question, accordingly, arose in my mind, Why was it possible to deliver this woman with a minor degree of flat pelvis by means of the axis-traction forceps when the other forms failed, and why did the older form fail?

It is not necessary for me to discuss here the mechanism of labour in a flat pelvis, but I may remind you that the transverse diameter is roomy, while the conjugate is contracted. The head is thus caught in its transverse diameter, while its antero-posterior diameter has comparatively abundance of room. This being so, it is easy to apply the blades to the occiput and sinciput of the child, but well-nigh impossible to adapt them obliquely or transversely to the head—that is, in the oblique or conjugate of the pelvis. The difficulty of delivery by means of the forceps in flat pelvis, then, has been attributed, apart from the difficulty of locking the instrument, to the supposition that the compression in an antero-posterior direction by the forceps blades resulted in a corresponding widening of the transverse diameter of the head, which, already caught in a narrowed conjugate, became more firmly locked in this diameter.

A reference to the standard text-books shows how widely accepted this view of the action of the forceps is. They all agree, more or less accurately, as to the mechanism developed by the compression of the forceps.

“The reason,” says Schroeder,¹ “why we do not recommend the forceps in these cases is the following:—The head enters with the sagittal suture in the transverse diameter of the contracted pelvis. But when the head is high up, the forceps can only be applied in the transverse diameter of the pelvis, and consequently the blades must grasp the forehead and occiput. . . . The forceps applied in this way would also compress the longitudinal diameter of the head, and this compression would increase the pressure to which the maternal soft parts are already exposed, from the head lying between the promontory and the symphysis. It is evident, also, that this enlargement of the head in the transverse diameter would render its passage through the contracted parts still more difficult.”

“The forceps,” says Lusk,² “applied in the transverse or oblique

¹ *Manual of Midwifery* (English edition), p. 59.

² *Science—Art of Midwifery*, p. 475.

diameter of the pelvis prevents the former compensation from taking place. It increases the width of the head, and this adds to the difficulty of passing the conjugate."

In his elaborate paper on labour in deformed pelvis, Goodell¹ says,—“The fronto-occipital compression to which the head is subjected not only prevents the natural lengthening out of the long diameter, but it causes bulging of all the cross diameters.”

But if this bulging of the cross diameters of the head were the case in the use of the older instrument, it must also be the case with the axis-traction forceps, whatever pattern may be employed. To permit of traction a certain amount of compression must be applied, and consequently the locking of the transverse fœtal diameter in the maternal conjugate diameter, if it occurred with the older pattern, must likewise occur with the new. It seems clear *a priori* that this widening of the diameter could not explain the difficulty of delivering such cases with the older instrument, and it seemed proper, before going further in the study of this matter, to investigate accurately the nature and amount of the changes which do occur when the fœtal head is grasped by forceps in an antero-posterior direction. To determine this point a very simple method of experiment was adopted.

A recently-delivered fœtus was taken, the centre of the parietal boss on either side was marked by means of a pin, which was pushed through the bone, and in a similar fashion were marked the bitemporal and bitemporal diameters. This enabled measurements to be taken from the proper points with great accuracy, when the head underwent compression and distortion during the course of the experiment.

A cephalotribe was then placed with its blades accurately applied on the occiput and sinciput, and the screw brought up until the blades were just in contact with the head, but were not compressing it in any way. The distance between the outside surfaces of the blades was then carefully measured by means of callipers, and noted. This is termed in my notes and the tables the “occipito-frontal diameter,” but of course it includes the thickness of the blades as well. Thereafter, by means of the callipers, the transverse cephalic diameters were measured and noted in a similar fashion. In this way the normal dimensions of the fœtal head were obtained.

The compression-screw of the instrument was now turned until a manifest reduction of the occipito-frontal diameter had taken place. The four diameters were then measured and noted, and the same procedure repeated two or three times, until the bones began to show signs of giving way under the compression.

The observations were repeated on nine fœtuses of varying degrees of development. I have not thought it necessary to do

¹ “Labour in Narrow Pelves,” *Trans. of Internat. Med. Congress*, Philad., 1876, p. 787.

more than give the details of two cases (being the first and the last of the series), because all the experiments give almost identical results.

I. A fully-developed child delivered by the breech, died during delivery. Observation made day after birth.

Names of Diameters.	Before Compression.	After Compression.		
		I.	II.	III.
Occipito-frontal, .	$4\frac{4}{8}$	4	$3\frac{4}{8}$	3
Bi-mastoid, . . .	$2\frac{4}{8}$	$2\frac{4}{8}$	$2\frac{4}{8}$	$2\frac{4}{8}$
Bi-temporal, . . .	3	3	3	3
Bi-parietal, . . .	$3\frac{3}{8}$	$3\frac{3}{8}$	$3\frac{4}{8}$	$3\frac{3}{8}$

From this table it will be seen that the successive compression reduced the occipito-frontal diameter by half an inch each time, the total reduction from $4\frac{1}{2}$ inches to 3 inches, a loss of $1\frac{1}{2}$ inch, or 33 per cent. Yet it will be seen that, in spite of this very great reduction, the transverse diameters underwent hardly any change. Thus the bi-temporal remains absolutely constant, while the bi-parietal increases by $\frac{1}{8}$ inch at the second compression, losing this again on the third compression. The bi-mastoid, again, remains quite constant during the first compression, but increases by $\frac{1}{8}$ under each of the successive compressions, in this way gaining $\frac{1}{4}$ inch, while the occipito-frontal lost $1\frac{1}{2}$.

I should note that the amount of compression exerted at III. was sufficient to affect the contents of the skull to such an amount that the left eye bulged out of its socket, representing a degree of force far greater than could be applied by an ordinary pair of forceps.

II. The ninth experiment was made on a foetus slightly undersized, which died during delivery from asphyxia, the cord being round the neck and the mother unattended at the time. The arrangement of the experiment was identical with the first, and the observations were made in the same way.

Names of Diameters.	Before Compression.	After Compression.	
		I.	II.
Occipito-frontal, .	$4\frac{4}{8}$	$3\frac{3}{8}$	$3\frac{4}{8}$
Bi-mastoid, . . .	3	3	$2\frac{4}{8}$
Bi-temporal, . . .	$2\frac{4}{8}$	$2\frac{4}{8}$	$2\frac{4}{8}$
Bi-parietal, . . .	$3\frac{4}{8}$	$3\frac{4}{8}$	$3\frac{4}{8}$

Two stages of compression were employed, the first reducing the occipito-frontal diameter by $\frac{5}{8}$ inch, the second by $\frac{1}{8}$ inch more. Here the bi-mastoid and bi-temporal remain constant, while the bi-parietal gains $\frac{1}{8}$ inch in the last stage.

As I have said, all the other experiments give almost identical results—absolutely identical in the absence of transverse increase, with a moderate amount of antero-posterior reduction, and almost identical in the minute amount of increase of these diameters under extreme and mutilating degrees of reduction.

The mechanical explanation of this interesting result is not difficult. The idea that diminution of the occipito-frontal diameter of the foetal head must be accompanied by a corresponding increase of the transverse diameters, arises from the conception of the foetal skull being a continuous elastic box, the mechanical relation of which might be represented by a continuous oval elastic ring. If such a ring, constructed, for example, of watch-spring, is compressed along one axis, it will of necessity expand along another. And if this represented the structure of a transverse section of the foetal skull, it is obvious that compression of the long (occipito-frontal) axis must result in widening of the shorter (bi-parietal, bi-temporal). But, as we all know, the foetal skull is built up of a number of segments so arranged that the anterior and posterior ones may slide under the intermediate one. This, then, is exactly what happens in the case under consideration. The occipital and frontal bones under the compression of the forceps slide under the posterior and anterior borders of the parietal bones, and in this way the head becomes “telescoped” from before backwards. Thus the head lends itself readily to antero-posterior shortening without any mechanical necessity for transverse bulging, so far as the segment under consideration is concerned.

But the question at once arises, What during this process of compression happens to the contents of the skull; how do they accommodate themselves to the diminished space?

It may safely be assumed that these contents are practically incompressible, and that if their containing space is limited in one direction a corresponding expansion must be found for them elsewhere. This expansion is undoubtedly provided by an elongation of the skull in a vertical direction, directly proportioned to the antero-posterior compression.

The approximation of the occipital and frontal bones, resulting as it does in an increased intracranial pressure, is followed by the elevation of the parietal bones, so that these tend to move away from the occipital and frontal bones, leaving a distinct space between the upper surface of the latter and the under surface of the former. If the head is caught between the forceps in a position half-way between flexion and extension (as will be the case when they are applied in a flat pelvis), both ends of the parietals will be equally elevated; and if in a state of flexion (as in a justo-minor

pelvis), then this elevation will chiefly affect the posterior end of the parietals. The parietal bones thus ride upon the cerebral contents like a saddle, and it is due to the mobility of these bones that the cerebral contents find accommodation when the antero-posterior diameter has been diminished by compression.

This vertical elongation was described long ago by Chassagny, and was regarded by him as of vital consequence in delivery of the head by forceps. To permit of its taking place without difficulty, he devised the forceps with which his name is associated, in which the blades are parallel and not crossed, so that the elongating head might meet with no obstruction at the crossing of the blades, as in the ordinary instrument. A modified form of the same elongation is seen in cases of persistent occipito-posterior position, when the long-continued compression of the skull at the level of the parietal bosses is followed by the familiar sugar-loaf appearance of the head.

A moment's consideration will show that the application of the compressing instrument in any diameter other than the antero-posterior will be followed by totally different results. For example, if the grasp is an oblique one,—that is, one blade over, say the right half of the lambdoidal suture behind, and the other on the left frontal bone,—the effect of compression will be distortion of the head, producing a lengthening of the free oblique diameter (*i.e.*, from the left half of the lambdoidal to the right frontal bone). This lengthening of the free diameter will be nearly proportional to the shortening of the compressed diameter, and such an effect will materially increase the difficulty of the passage of the head through a narrow conjugate. The "telescopic adjustment" is in such a case entirely lost; its occurrence depends on the compressing force of the instrument being applied in a line coincident with the antero-posterior diameter.

While the experiments detailed were made by means of the cephalotribe, the same results can be obtained by means of the forceps, though compression can be effected by the latter instrument to a smaller degree. The former instrument was employed because much greater compressing force could be applied by its use, and the results of such force more easily demonstrated. The broader blade of the forceps in no way alters the manner in which the occipital and frontal bones glide under the parietals, while the transverse distance between the last-named bones remains constant.

From these observations we may safely make the following deductions:—

1. The foetal skull is compressible in an antero-posterior direction by the sliding of the occipital and frontal bones under the ends of the parietal bones.
2. This compression is not accompanied by any appreciable increase of the transverse diameters.

3. The antero-posterior shortening is compensated for by a vertical elongation of the skull, the parietals tending to move away from the frontal and occipital bones. This provides for the accommodation of the cranial contents.

In conclusion, let us consider very briefly what practical bearings these observations have.

First, They appear to me to show that the failure of the older forceps to effect delivery in minor degrees of flat pelvis was not due to bulging of the transverse foetal diameters and consequent jamming of the head, because, in the first place, this would occur as much with the axis-traction as with the older forceps; and, in the next place, this bulging (as these experiments show) does not occur at all.

Accordingly, we must look for the explanation of the success of axis-traction and the failure of the other in the fact that by the former we are able to pull upon the head to a greater advantage, that is, we can apply traction nearer the true axis of the individual pelvis. The error of the older form in the normal pelvis is greatly increased by the special features of the flat pelvis—altered inclination and abnormal axis.

Second, These experiments give us an added assurance in dealing, by means of the forceps, with these cases of undoubted flat pelvis and flat mechanism where the head has partly engaged, this fact showing that the difference between the foetal and maternal diameters is one of minor degree. In such cases we may hope that, by a reasonable amount of traction, the head may be safely brought past the obstruction. In such cases we need not be troubled with the fear that the application of the forceps to the extremities of the child's head will increase the complications by the conjugate diameter. A minor pelvic defect of this sort may frequently yield to traction with the forceps, provided that traction is applied in a proper direction, *i.e.*, in the axis of the brim. In this way the undoubted risks of turning may be avoided in many cases where, without this instrument, turning was unavoidable.

I hope it is clearly understood that I am advocating the use of the forceps only in the *minor* degrees of flat pelvis. The limits of safe forceps delivery has been fixed at different points by different authorities in relation to the conjugate at the brim. I believe that with the axis-traction forceps the limit has been extended, that is, we may now safely deliver a head through a smaller conjugate than we could with the older instrument. What this limit is it is not easy to define. I believe each case gives its own indication, and I should say that the forceps may be employed with reasonable assurance of success in all cases where the head has engaged, its having engaged being an indication that the disparity between the maternal and foetal diameters is not great.

And here let me say, with all emphasis, that the advantage this instrument gives, as compared with the older, is that we can apply

traction in a direction more coincident with the pelvic axis than was possible with the other, and in no sense does this advantage lie in their giving us a means of applying more power in the process of extraction. Their virtue lies in thus enabling us to deliver *suitable* cases with *less*, because with *better directed* force—not that they permit us to deliver *unsuitable* cases by the use of *additional* force. The fact that more power can be transmitted to the pelvis and head by them than by the old forceps is a distinct and definite disadvantage, and in the hands of the careless or unskilled renders them a most dangerous and pernicious machine.

I have often shuddered when, on showing them to a robust and able-bodied practitioner, I have seen him grasp them with both hands, working the rods up and down, and exclaim, "What a capital instrument; what a power you have with them!" In such hands, stimulated with such a conception of their object, the possibilities are appalling.

The axis-traction forceps is in reality a diagnostic as well as a therapeutic instrument. It enables us to determine the safe limits of attempts at delivery by this means. We can apply the force in the best direction, and if a reasonable amount of such force is not sufficient to effect delivery, we ought to recognise that some other means must be adopted.

If these facts were kept in mind, we should hear less frequently about laceration of the perineum and other accidents often attributed to the use of this instrument—accidents only too frequently due to its abuse.

Thirdly, These observations show that it is of the greatest importance that in all cases the blades of the forceps should be applied as near as may be over the extremities of the presenting antero-posterior diameter. It is only by compressing the head directly from before backwards that the full mechanical advantage of the "telescopic compression" can be obtained. The advantage is greatly lost in an oblique grip, and though this is unavoidable in many cases, it should be avoided, if possible, in all cases where the head is at or above the brim. In cases of flat mechanism, where the occipito-frontal diameter presents in the transverse, the two blades should lie at the extremities of the transverse diameter; but in cases of justo-minor pelvis the head usually presents in the oblique, and, accordingly, the forceps will act to the greatest advantage if applied at the extremities of the same oblique at the brim. If applied in such a case in the transverse at the brim, they will grasp the fetal head over one-half of the lambdoidal suture behind, and over the opposite cheek and half of the coronal suture in the other aspect. Such an asymmetrical grasp as this will undoubtedly give rise to distortion, interfering with the "telescopic adjustment" which I have indicated, and in this way materially increasing the difficulty of delivery.

IV. THE LABIA MINORA AND HYMEN.

By J. W. BALLANTYNE, M.B., M.R.C.P.Ed., Assistant to the Professor of Midwifery in the University of Edinburgh.

(Read before the Edinburgh Obstetrical Society, 30th May 1888.)

IT is my wish in this communication to lay before this Society some observations on the *structure of normal and hypertrophied labia minora*, to record the appearances presented by the *hymen* in cases of *vaginismus*, and to consider the theories recently brought forward to explain the development of the hymeneal membrane.

Normal Anatomy of the Labia Minora.

The labia minora, labia internæ, or nymphæ, are in the older works on the anatomy of the external genital organs, and in most of the recent treatises on the subject, termed folds of mucous membrane; but, according to Langer, Aeby, Klein, Frey, Gerlach, Toldt, Carrard, Hart and Barbour, Parvin, and others, they are to be regarded as composed of skin. Dr Henry Coe, writing in the *American System of Gynecology and Obstetrics*,¹ suggests the term muco-cutaneous as a compromise; but it is difficult to see what practical gain is obtained by adopting this term, and, further, Sir William Turner several years ago proposed the same descriptive phrase in speaking of the nymphæ. It is evident, therefore, that there is much difference of opinion with regard to the nature of the labia minora, and it is the object of this paper to examine both macroscopically and microscopically, healthy and hypertrophied nymphæ, in order to see whether the vexed question of skin *versus* mucous membrane cannot be definitely settled.

Naked-Eye Anatomy of the Labia Minora.

The labia minora are two folds, usually symmetrical, which lie nearer the middle line than the labia majora, and form the lateral boundaries of the vestibule and of the vaginal aperture. They are directed backwards and outwards, diverging in this way from the middle line. In the female child at birth the nymphæ are well seen, because at this time the labia majora are comparatively less developed; in the virgin the labia minora are hidden from view by the labia majora; in the woman who has borne children they are somewhat more exposed to view; and in the aged they are visible on account of the gaping condition of the vulva there present.

In the virgin the labia minora have a distinctly mucous membrane-like appearance, being rose-red in colour, but as age advances they become firmer in consistence, darker in colour, and more like skin. Their appearance has by some been likened to that of a cock's-comb.

¹ *American System of Gynecology and Obstetrics*, vol. i.

Each labium minus has an outer surface, which is applied to the inner surface of the labium majus of the same side, and an inner surface partly in contact with the inner surface of the labium minus of the opposite side, and hiding from view the vestibule, meatus urinarius, and vaginal aperture. At the base of the inner surface of each labium minus is to be seen, in most cases, the "white line," to which attention was drawn in 1882 by Dr Berry Hart. This white line is similar to that described by Hilton as forming the boundary between the skin round the anus and the mucous membrane, and its presence was brought forward by Hart to prove that the labia minora were composed of skin and not of mucous membrane, for this line can be seen running internally to the bases of the nymphæ. This "white line" is readily to be seen in most women. The free border of each labium minus is irregular and dentated, whilst the attached border is fixed in front to the side of the vestibule, and behind to the inner surface of the labium majus of the same side.

The anterior extremity of each nymphæ divides into two at the side of the clitoris. The upper part passes above the clitoris, and unites with that of the opposite side to form the fold known as the prepuce of the clitoris; the lower part meets that of the opposite side below the clitoris, and forms the frenulum of that organ. This bifurcation of the anterior or upper end of the labium minus is well seen in the sketch of the external genitals of the child (*vide* Fig. 1).

With regard to the termination of the labia minora posteriorly authorities are at variance, some holding that the labium minus blends with the labium majus of the same side about its middle; others, however, state—and I believe this to be the correct view—that the labia minora are not lost on the inner surface of the labia majora, but reappear posteriorly to the vaginal orifice, and are there united by a fold known as the fourchette. This arrangement of the nymphæ can be best seen in the child; it is not so evident in the adult woman. In some cases the labia minora are seen to form the fourchette directly, and in such cases rupture of the perineum very seldom occurs during labour,—a fact which is probably to be accounted for by the greater distensibility of the fourchette formed by the nymphæ. In support of the view that the fourchette is the posterior junction of the labia minora, we find that the structure of the fourchette very closely resembles that of the nymphæ; and, further, the "white line" can be traced running internally to the fourchette, but externally to the base of the hymen. Hart and Barbour state that the fourchette is the junction of the labia majora posteriorly; but in none of the specimens that I have examined was I able to trace this connexion, and the fact that there is such a close resemblance between the minute anatomy of the fourchette and that of the nymphæ is an additional argument in favour of their close anatomical relations.

On making a section of a labium minus we find that to the naked eye it presents the appearance of fibro-elastic tissue arranged in a network, and supporting a rich venous plexus. Gassenbaur gives to this tissue the name of cavernous. Kobelt regards the nymphæ as non-erectile structures, but in at least one case, which I have seen, there was a history of periodic enlargement of the nymphæ. In this case, however, as will be afterwards fully pointed out, the labia minora were much hypertrophied, and differed in their minute anatomy from the healthy structures. There are no hairs visible on the labia minora, but even by the naked eye the openings of large sebaceous glands can be seen on their surface. The nymphæ contain no adipose tissue.

A consideration of the gross anatomy of the labia minora does not, I think, warrant us in stating conclusively that these structures are skin and not mucous membrane. To the naked eye they very closely resemble mucous membrane, and this is more evident in the virgin than in the married woman. But there are certain points even in the gross anatomy which would lead us to consider the labia minora as cutaneous and not mucous structures. There is, first, the presence of the numerous large sebaceous glands, even although these are not accompanied by hairs; and there is, secondly, the existence of the white line, which we are, I think, justified in regarding as the boundary between skin and mucous membrane. To Dr Berry Hart belongs the credit of having drawn the attention of this Society to the presence of a white line internal to the labia minora, and similar to that pointed out by Hilton as marking the line of demarcation between the skin round the anus and the anal mucous membrane. Dr Hart, in his "Note on the Naked-Eye Anatomy of the Female External Genitals,"¹ says, "We can trace the line of demarcation between skin and mucous membrane as running along the base of the inner aspect of each labium minus, and passing into the fossa navicularis, separating its skin boundary, the fourchette, from the mucous membrane over the hymen." Hart's observation has since been confirmed clinically by numerous observers, and forms the strongest argument in favour of the tegumentary character of the nymphæ which can be drawn from a study of their macroscopic anatomy.

Microscopic Structure of the Labia Minora.

Let us now examine the microscopic anatomy of the nymphæ in order to see whether there are any characters which may justify us in regarding these structures as being composed of skin. Henri Carrard (*Zeitschrift für Geburtshülfe*, Band x.) has specially investigated the minute anatomy of the labia minora, and from the observations I have been enabled to make upon the nymphæ of the newly-born child and of the adult, I am in a position to endorse

¹ *Edinburgh Medical Journal*, Sept. 1882, pp. 264-5.

most of the statements that he has made. With regard to the minute anatomy of the labia minora in the newly-born child, I have made sections at the level of the vestibule, of the meatus urinarius, and of the vaginal orifice, and have found at all these levels the same characteristic structure. On the surface there are several layers (two, or three, or four) of squamous epithelium consisting of flat, non-nucleated cells. There is below this an ill-defined stratum lucidum, and beneath this again there is a very well-marked zone of nucleated prickle cells, the lowermost layers of which contain pigment granules. The prickle cell layer stains deeply with reagents, *e.g.*, osmic acid, nitrate of silver, Bismarck brown, methyl blue, iodine green, or picro-carmin. The prickle cells lying nearest the surface are somewhat flattened, those lying beneath are more polyhedral in shape, whilst those of the lowest layer are columnar, and are set vertically on the subjacent papillæ. We find here, therefore, a distinct stratum corneum, and an equally well-marked stratum malpighii or rete mucosum. Under the layer of prickle cells we find papillæ not so well seen in the labia minora of the child as in those of the adult woman. The papillæ consist of dense connective fibrous tissue with many elastic fibres, and are continuous with the underlying subcutaneous tissue. In this connective tissue we find sebaceous glands lying, the ducts of which perforate the prickle cell layer and the squamous epithelial layer. According to some there are no sebaceous glands in the labia minora at birth. In the cases I have examined I have, however, always found sebaceous glands, but not in anything like the numbers that are present in the labia minora of the adult. The sebaceous glands are certainly not confined to the outer aspect of the labia, as has been stated by Satterthwaite. In not one of the sections I have made have I seen any hairs; the ducts of the sebaceous glands open on the free surface. The fact that the sebaceous glands are here dissociated from the hair follicles is peculiar, but is not unique, for on the volar side of the hand and foot, and on the skin of the penis, we find also sebaceous glands without accompanying hair follicles. In the connective tissue we find also numerous veins and capillaries, and surrounding the vessels non-striated muscular fibres are to be seen in small amount. In the papillæ are vascular loops with small veinlets passing from them to join the underlying veins. In the nymphæ of the child I have not been able satisfactorily to demonstrate the existence of the Meissner nerve-endings, but in the labia of the adult and in some hypertrophied labia they are very manifest. The rest of the substance of the labium minus in the child is composed of the fibro-elastic network with numerous vessels, nerves, and lymphatics.

On comparing the structure of the labia majora in the child with that of the labia minora, we note the presence on the former of a much better marked stratum corneum and rete mucosum, and

the existence of much adipose tissue and of numerous hairs connected with the sebaceous glands. In the labia minora of the child I have not seen any adipose tissue whatever. There is no difficulty at all in distinguishing the labia minora and majora under the microscope.

With regard to the labia minora in the adult, we find essentially the same arrangement of parts as in the labia of the infant. There are, however, certain differences. Thus, pigment granules are much more numerous in the lower layers of epithelium, the epithelial layers themselves are thicker, and, as a rule, a distinct stratum lucidum can be made out. The nerve end-organs are also prominent structures in the labia of the adult. In the papillæ are to be seen the tactile corpuscles of Meissner. Carrard has drawn special attention to these Meissner corpuscles, and has pointed out that they have hitherto only been determined on the skin of the palm of the hand, sole of the foot, on the edge of the eyelids, the male and female nipples, the clitoris, volar surface of the forearm, and the red border of the lips. These corpuscles are oval in their shape, have a fibrous capsule, and are connected with a medullated nerve-fibre, which winds round the corpuscle and penetrates the capsule, loses its sheath, and becomes coiled up in the interior of the corpuscle. The nerve end-organs in hypertrophied labia minora are, as Carrard was the first to point out, altogether peculiar, and will be alluded to when we come to look at the specimens of enlarged labia. I have found no mucous glands in the labia minora.

From a study, then, of the minute anatomy of the healthy labia minora, we get additional evidence in favour of the view that these structures are composed of skin, and Carrard considers this evidence to be conclusive. The arrangement of the epithelium, the presence of the sebaceous glands, the absence of mucous glands, and the existence of the peculiar nerve-terminations, all support the view that the nymphæ are tegumentary in character. At the same time, I do not think that the evidence derived from the minute anatomy is altogether conclusive, and the value placed upon the presence or absence of the structures above named comes to be very much a matter of opinion among different histologists.

In their development the labia minora are epiblastic structures, but this fact in itself does not, of course, warrant us in concluding that they are tegumentary, for, to take only one example, the mucous membrane of the mouth is epiblastic.

From a study of the pathology of the labia minora we are, I think, warranted in drawing certain inferences as to their normal structure. Carrard has carefully figured and described hypertrophied nymphæ from pruritus cases, and upon the appearances seen in them draws additional proof in support of the idea that the labia minora are tegumentary in character. In two cases in

which the nymphæ were considerably enlarged I have been able to examine their structure, both macroscopic and microscopic.

The first patient, Miss G., was under Professor Simpson's care last autumn for weakness of the lower limbs, she being quite unable to walk. The labia minora were much enlarged, and as they gave rise to considerable inconvenience and irritation, Dr Simpson removed them by the thermo-cautery. The patient had for three months the Weir Mitchell treatment by massage and feeding with large quantities of milk, and is now almost entirely well. The labia minora which were removed were about 4 c.m. in length and $\frac{1}{2}$ c.m. in thickness, their free margins were irregularly dentated, their surfaces were thrown into numerous rugæ, and they were darkly pigmented. One, the left, was slightly larger than the other. In this case there was no indication of syphilis. Masturbation was not inquired into.

We shall return to the consideration of the minute anatomy of these nymphæ after having narrated the history of the second case. Miss A. P., aged 18, was an inmate of the Buchanan Ward, Royal Infirmary, in December 1887 and January 1888. She was sent in as a case of hermaphroditism. She complained of swelling in the private parts interfering seriously with walking, and of pain, sharp and continuous, in the swelling. She had noticed the swelling first eight years ago. The menstrual flow was normal in type and habit. There was a family history of phthisis.

On examining the external genitals both the labia minora were found to be enlarged, but the left much more so than the right. The left nymphæ had a pyramidal form, and was divided into two portions by a deep furrow, and in the furrow was a piece of common twine. Its base of attachment measured $3\frac{1}{2}$ c.m. in length, and the distance from the base of the labium to the apex of the constricted part was 4 c.m., whilst its greater thickness was 2 c.m., and the thickness of the labium at the furrow was $\frac{1}{4}$ c.m. The whole surface was covered by a great number of rugose folds, and the whole labium was of a yellowish-brown colour.

The right nymphæ was smaller. Its base of attachment measured 4 c.m., its thickness was $\frac{1}{2}$ c.m., and the distance from the base to the free margin was 3 c.m. It also was covered by a multitude of folds and was pigmented. There was no constriction similar to that seen on the left labium. The enlarged labia were tender to the touch, and the patient stated that at times they became swollen and very painful. She disowned all knowledge of anything that might have led to the constriction, but as she contradicted herself on cross-examination, not much reliance can be placed upon her statements. The string had evidently been recently applied, as there was no ulceration. The enlarged nymphæ were removed by Paquelin's cautery. The appearance of the labium with its constricted apex had suggested the idea of hermaphroditism. The patient denied masturbation.

Let us now look at the microscopic characters of the nymphæ in those two cases. In the first case, that of Miss G., sections of both labia were made and stained with the various reagents, picro-carmin, logwood, eosine, methyl blue, Bismarck brown, iodine green, nitrate of silver, osmic acid, etc. The first characteristic which is readily apparent to the eye on examining these sections is the enormous number of sebaceous glands which can be seen (*vide* Fig. 2). No hairs are to be demonstrated, the sebaceous glands opening alone upon the surface by narrow ducts. Each gland consists of several oblong alveoli lined by small polyhedral, granular, epithelial cells, and containing large polyhedral cells with oil globules. These sebaceous glands are not confined to one or other surface of the labia minora, but occur under the epithelium at all points. We have to note an increase in the connective tissue stroma as compared with the healthy labia, but there is no great increase in the bloodvessels, neither are there any hæmorrhages.¹ There is a total absence of adipose tissue. Nerve end-organs are to be seen, notably the Meissner tactile corpuscles, but they are small in number, and their scarcity is especially to be noticed when we compare these sections with those obtained from the labia minora of the second case. The epithelial layers, stratified squamous and prickle cells, are well developed, and greater in extent than in healthy labia minora. These labia present appearances somewhat dissimilar from those figured by Carrard in his contribution.

On making a microscopic examination of the labia minora of the second case, we notice first the small number of sebaceous glands which are present. I have carefully examined a very large number of sections of the left labium minus, both below and above the point of constriction, and have found only a very few sebaceous glands. In the case of the right labium minus in some sections sebaceous glands are to be seen, whilst in other sections they are represented only by their atrophied remains; in still other sections there are no traces of them whatever. The epithelial layers present very much the same appearances as they do in the labia from the first case. I have not been able to demonstrate the adenoid tissue underlying the epithelial layers to which Carrard has drawn attention. The papillæ are very numerous, many of them are simply vascular, but a considerable number are nervous, containing nerve end-organs. Carrard describes three varieties of nerve terminal organs which he found in hypertrophied nymphæ. Those end-organs are, firstly, Meissner tactile corpuscles; secondly, globular terminal bulbs (*kugeliger end-kolben*) which are not to be found in healthy labia minora, but are normally present in the conjunctiva; and, thirdly, a form of nerve end-organ which Ihlder has described as existing in the tongue of birds, but which has not hitherto been observed in the

¹ The capillaries, however, are seen to be dilated.

human subject. The first of these varieties, namely, the Meissner corpuscle, is to be seen in healthy as well as in hypertrophied labia minora, but the second and third varieties are, according to Carrard, only to be found in the hypertrophied organs. I have been able to see the Meissner corpuscles, and the globular terminal bulbs, but have hitherto been unable to demonstrate the third variety, which would seem to be a transitional form (*vide* Figs. 3 and 4). The nerve fibres are also increased, and there is a most marked increase in the connective tissue of the labia minora. There was one symptom which was present in Carrard's cases, but absent in the patients whose labia I have examined, namely, pruritus, and this fact may, perhaps, account for some of the differences found on microscopic examination.

In the labia of the first case (Miss G.) I have, therefore, noted increase in the connective tissue, increase in the number of sebaceous glands and in the epithelial layers, but no increase in the nerve end-organs, nerves, or bloodvessels; whilst in the labia of the second patient (Miss A. P.) I have noted increase in the epithelial layers, in the nerve end-organs (Meissner corpuscles, and globular terminal bulbs), and in the connective tissue, great scarcity of sebaceous glands in the left labium minus, marked diminution in their number in the right labium, and an absence of vascular enlargements. A very striking microscopic feature is the presence of the sebaceous glands in great numbers in the organs of the first case, and their great scarcity in at least one of the labia in the second case. This would seem to point to a condition in the nymphæ similar to fine cirrhosis, causing increase in the connective tissue, and subsequent atrophy of the sebaceous glands.¹ The labia minora in the second case probably show only in an advanced stage the same process which is at work in the labia of the first case.

Whilst the microscopic appearances of hypertrophied nymphæ are thus interesting from many points of view, they also, I think, furnish us with additional proof with regard to the tegumentary character of the labia minora. The presence of the white line in the naked eye anatomy of the parts, the microscopic features of healthy foetal and adult nymphæ, and the microscopic appearances of hypertrophied labia minora, form a conclusive series of arguments in favour of the statement that these structures are skin and not mucous membrane.

The Hymen.

Some interesting communications have within the last few years been made to the study of the nature of the hymen.

Budin, in 1879, stated that the hymen was simply the anterior end of the vagina projecting like the finger of a glove into the

¹ In support of this view, I have been able to demonstrate sebaceous glands breaking down and becoming atrophied.

vulva, and the fact that the vaginal rugæ can be traced on the vaginal aspect of the hymen lends some proof to this statement. Matthews Duncan has found, however, that in some cases where no vagina was present there yet existed a hymeneal membrane; he, therefore, argues that the hymen must be developed from the external genitals, and cannot be simply the lower end of the vaginal canal.

Bland Sutton,¹ in the November of 1887, read a paper before the British Gynæcological Society on the nature of the hymen, and in his contribution brought forward a new argument with regard to its origin.

He studies the subject from the embryological standpoint, and finds in the development of the anus and rectum a hint as to the nature of the hymen. The proctodæum, or anal involution, invaginates till it meets the blind extremity of the gut, the two fuse together to form the cloaca, and the distinction between the two component parts is preserved in the mature condition by the presence in the rectum of a ridge of adenoid tissue, which marks the spot where the epiblastic squamous epithelium of the anus meets the hypoblastic columnar celled epithelium of the rectum. Sutton further finds that on examining the anterior part of the cloaca, the urino-genital sinus, which has become shut off from the gut by the down-growth of the perineal body, there is to be seen a membrane known as the hymen, which he regards as the homologue of the ridge of adenoid tissue in the rectum. Bland Sutton, therefore, defines the hymen as a "thin septum resulting from the imperfect coalescence of the proctodæum with the urino-genital section of the cloaca," for he says, "where two culs-de-sac come into contact, and exert pressure upon each other, the edges gradually cohere and join organically; the thin septum thus produced gradually thins until a perforation results." We have thus an explanation of the varieties of hymen met with—the crescentic, imperforate, cribriform, and the like. Bland Sutton finds an additional argument in support of his view from the occasional occurrence of a membrane, either imperforate or in the form of a hymen-like diaphragm, in the pharynx. This membrane marks the point at which the involution of the surface epiblast, or stomodæum, has met the blind anterior end of the foregut.

Bland Sutton's observations are extremely interesting, but I think those of Pozzi, which were recorded in the *Annales de Gynécologie* (vol. xxi.), are even more so.

Pozzi noted that in the case of a male hypospadiac, where the urethra opened beneath the glans penis in a space corresponding to the vestibule in the female, there was to be seen a band stretching from the penis to the meatus urinarius encircling this aperture, and becoming continuous with a membrane which closed a pseudo-vulvar aperture. This structure Pozzi calls the

¹ *British Gynecological Journal*, vol. iii. p. 517.

balano-urethral or vestibular band. In a second case, that of a young girl with no vagina, and as far as could be made out no uterus or ovaries, Pozzi found a band stretching from the base of the clitoris downwards in the middle line to the base of the vestibule, where it encircled the meatus urinarius, and became continuous with the hymen. This structure he terms the male vestibular band in the female.

The male vestibular band is rarely to be seen in the healthy adult woman, but it is fairly constantly present in the newly born female child (*vide* Fig. 1). In the case of the male hypospadiac, Pozzi regards this band as the representative of the spongy portion of the urethra, and the hymen-like membrane as the bulb of the urethra which has remained in a membranous and non-erectile condition. He further extends the argument to the adult female, and regards the male vestibular band in the female as the homologue of the corpus spongiosum, whilst the hymen he looks upon as being homologous with the bulb of the urethra. He, therefore, considers the hymen to be formed from the external genital organs, and does not look upon it as the lower end of the vaginal canal.

I have made sections of the external genital organs of the newly born child at the level of the vestibule (*vide* Fig. 5), in order to note whether any anatomical substratum could be found for the ridge which was undoubtedly to be seen in the middle of the vestibule. In these sections I found in the middle line a distinct ridge stretching from the base of the clitoris to the meatus urinarius, and becoming apparently continuous with the hymen. The connective tissue underlying this ridge is denser than that under the vestibule generally, and many yellow elastic fibres are to be seen in transverse section. The epithelial layers covering the band are similar to those which exist over the vestibular surface generally. There would seem, therefore, to be some evidence which will enable us to regard this band as a distinct anatomical structure, and possibly as the membranous representative of the corpus spongiosum in the male, but we must also bear in mind the possibility that this band may be only a fold in the vestibular mucous membrane, caused by the fact that during intra-uterine life the foetus lies with its thighs adducted and flexed upon the abdomen. At the same time, it must be remembered that this band is occasionally seen in the adult female.

The investigations of Matthews Duncan, Pozzi, and Bland Sutton prove, I think, conclusively that the hymen is derived from the vulva and not from the vagina.

Several interesting observations have recently been made upon the pathology of the hymen, and in two cases of vaginismus which were operated upon by Professor Simpson, I have been able to examine microscopically the hymeneal remains which were then removed.

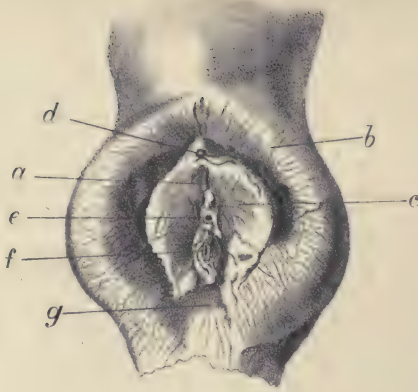


Fig. 3.



Fig. 4.

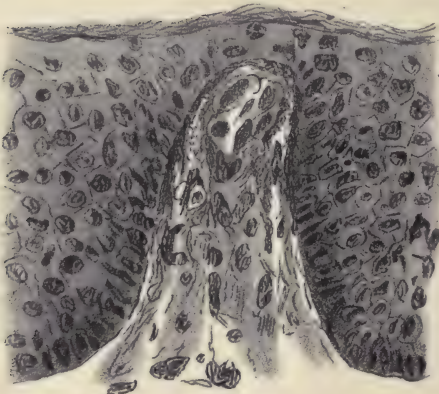
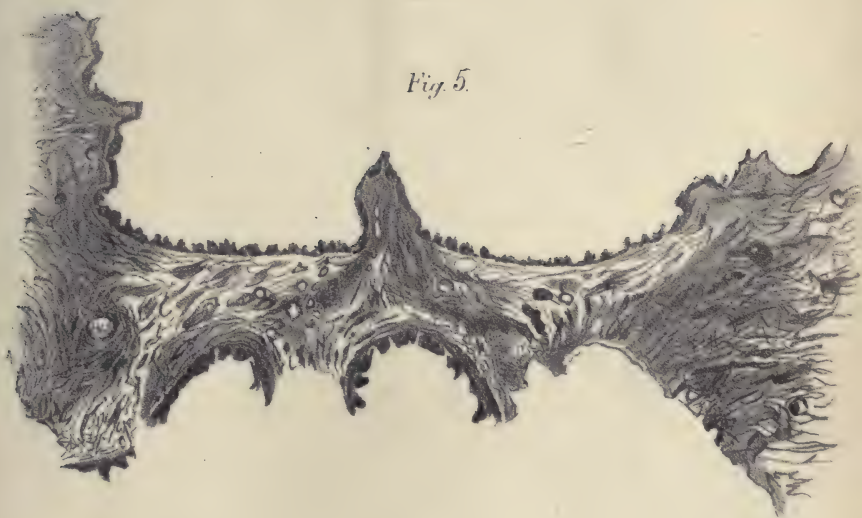


Fig. 2.



Fig. 5.



Both cases were typical ones of vaginismus, and in both Dr Simpson made lateral incisions posteriorly, and clipped away the remains of the hymen. Of these remains microscopic sections were made, and these sections show a fine connective tissue basis with an enormously thick epithelial layer. The epithelium is squamous on the surface, there is a beautifully marked stratum lucidum, and an extremely thick zone of prickle cells. Into the prickle cell layer project very many papillæ. The surface rises in folds. At many points there seems to be a folding inwards of the surface epithelium, and as a result of this numerous spaces are to be seen lined with the prickle cells. These appearances may explain the development of the so-called cysts of the hymen, which have been recently described (*Archiv f. Gyn.*, Bd. xxiii.-xxix.) I think that from the microscopical appearances we are warranted in calling these hymeneal remains papillomata.

DESCRIPTION OF PLATES.

FIGURE I.

The external genitals of a new-born child, showing (a) the male vestibular band of Pozzi, (b) the labia majora, (c) and minora, (d) the clitoris, (e) the urethral aperture, (f) the hymen, and (g) the fourchette.

FIGURE II.

Section of hypertrophied labium minus (case of Miss G.) showing numerous sebaceous glands and bloodvessels.

FIGURES III and IV.

Section of hypertrophied labium minus (case of A. P.), showing nerve end-organ in papilla, and layers of epidermal cells. Ag N O₃.

FIGURE V.

Section of external genitals of child, shown in Fig. 1, at the level of the vestibule, and demonstrating the male vestibular band as a distinct projection in the middle line.

V. CYSTIC DISEASE OF THE OVARIES.

By J. W. MARTIN, M.D.

(Read before the Obstetrical Society of Edinburgh, 11th July 1888.)

THE frequency with which the operation of removal of the ovaries at the hands of the gynæcologists is carried out in these days of laparotomy has called forth the very serious attention of workers in the profession to the study of the pathology and diseased conditions demanding the removal of these all-important organs. It goes without saying that the existence of a large ovarian tumour occupying space within the body, and sprung up to the detriment and destruction of the ovary, and with ever-increasing danger to the life of the individual, should be extirpated, and this is the operation of ovariectomy. It dates from the successful attempt of MacDowell of Kentucky, U.S.A., who in

December 1809 removed a large ovarian tumour from Mrs Crawford, and the operation is at once an epoch in the history of Gynæcology, and one of the greatest achievements of this age. The incalculable benefits which this operation, rightly or wrongly so called, has bestowed upon the human race necessitates it being carried out in every case *cæteris paribus*. But that a large number of ovaries and tubes are now removed by gynæcologists, without being markedly changed, though for severe symptoms set up in the individual, demands that the exact pathology of these organs should be known. The operation for their removal is oöphorectomy.

I had my attention accordingly directed to such ovaries, and a number came to hand in the course of this year, which were removed by gynæcologists in the Royal Infirmary.

These were all removed for common symptoms, notably pain, long-continued and distressing, extending over a period of months or years, and which did not yield to palliative treatment; also dysmenorrhœa and other symptoms, reflex and local. In one case the other ovary, along with a large multilocular cystic tumour, was removed. This because it was cystic and enlarged, and was feared it might give rise to another tumour. In examining these specimens I was struck with the fact that they were all more or less cystically degenerated, and while investigating their pathology I sought to discover the origin and cause of cystic disease.

Cystic tumours, by the way, are of two kinds—simple and multiple. The simple or monothalamous are generally understood to be Graafian follicles distended with fluid (liquor folliculi) in a dropsical state, previous to rupture or after, and the ovum may be found with fluid, destroyed or healthy, the follicle being within the tissue of the ovary.

A second form is the tubo-ovarian cyst, described in books as hydrops ovarium profluens, first by Blasius (*De Hydrope Ovarium Profluente*, Halle, 1834), and both ovary and tube participate in its formation, the line of demarcation being seen on the cyst walls. Richard (see Klob, *Pathol. Anatom.*, 1864) described the same, and believed fluid could flow from the uterus into the cyst. There is pigment observed on the walls formed by the ovary, the cyst being formed by the fimbriated end of the tube remaining attached to a ruptured follicle, and secretion taking the place of blood, it grows into a cyst, though never attaining any considerable size.

Another kind of cyst is the dermoid, long recognised by gynæcologists, which contains the elements of skin—together with its appendages, nails, hair, teeth, bones, and sebaceous matter poured out. The origin of these tumours is from a portion of the upper and middle germinal layers being misplaced at an early period of development.

Then follow the large ovarian cysts of the ovary of multiple growth. These are of two kinds, called respectively the papillomatous and glandular cystomata. The former is characterized by

the growth of little papillomatous projections from the walls within the cyst, these covered by the large cylindrical epithelium. The other derives its name from the fact that the epithelium forms little follicular growths outwards, and these, again, may proliferate. The contents of these cysts is a thick glairy-like fluid or colloid material, which may be highly inspissated or in a fluid state. Lastly, cysts may be formed in connexion with solid and malignant tumours, fibromata and adenomata, but it is not my intention to take up these, though I have had one specimen at least to illustrate.

I pass over the histology, anatomy, and development, also the physiology of the ovary.

There has been much written upon the subject of ovarian cysts from the commencement of literature, but it is only since 1848 anything intelligible upon the subject has been published. Fœrster and Virchow described the large ovarian cysts taking their origin in the ovarian stroma, this due to a colloid change in the cells of the stroma. Rokitansky also took a similar view.

Rindfleisch wrote,—“Certain cysts are developed at the expense of a part of the ovarian connective stroma, which is softened and becomes colloid.” Olshausen believes in the epithelial origin of cystoma of the ovary, and points out the rôle of the stroma is to participate in the growth of the tumour, but not give rise to it. Harris and Doran describe cysts arising out of the ovary from the remains of corpora lutea, seeking to prove the origin of epithelium out of endothelium or connective tissue elements.

Noeggerath (*American Journ. of Obstet.*, 1880) shows both cysts in the ovary, *i.e.*, simple and multilocular, arise out of bloodvessels and capillaries. Waldeyer, Klob, and others, together with Malassez and De Sinety, in their important work, believe large cysts of the ovary arise out of epithelium, and that alone existing in the ovary. It would seem there is still some light to be thrown upon ovarian pathology.

I examined a number of ovaries in the course of my microscopic work in the Laboratory of the Royal College of Physicians, and I found there ample material to investigate the origin of cysts. There was a noticeable feature in the majority of them, namely, the incidence of hæmorrhage and other manifestations of excessive determination of blood to the organ, the amount of blood pigment, and that in various forms—in one case like a mass of vermilion; the condition of the bloodvessels and their channels filled with blood, hæmorrhages into the stroma, into cystic spaces, into distended Graafian follicles under the surface, into lymphatics, and wherever blood can find its way. I believe the formation of cysts has to do with hyperæmia of the organ. Before proceeding further, I should like to mention the macroscopic appearance of one ovary. It was long and cylinder-shaped, about $\frac{1}{4}$ an inch in diameter, and the tube was also attenuated to the size of a crow quill. It was no doubt due to some error in development, one end having

become attached high up to the parietes, and the whole lengthened in process of growth.

I studied the origin of simple cysts in the ovaries of a child three years of age, and also observed processes the same in adult ovaries. The flattened epithelium of the membrana granulosa of a follicle at some depth begins to enlarge. It forms cubical epithelium, and goes on proliferating, but not to form the discus proligerus. The cells proliferate rapidly, and soon there is a mass of small round cells surrounding the ovum. The follicle swells and enlarges, fluid is poured out, and this presses the cells outwards from the centre. The stability of the ovum is interfered with, and it is sooner or later destroyed and disintegrated, the fluid goes on accumulating, the cavity enlarges, the small-celled growth is severed from the peripheral walls, and with the presence of the fluid they begin to die and quickly disintegrate, and the cystic space contains nothing but fluid and detritus, amongst which are leucocysts from the blood, showing the existence of hyperæmia. The surrounding layers of tissue have gone on strengthening and increasing around the cyst wall in a layer of nuclear proliferation, and occasionally small cuboid cells; beneath that is fine connective tissue and some strands of non-striped muscular fibres, often with small blood-vessels and lymph spaces; outside that is connective tissue, then stroma.

It is quite possible hydrops folliculi might occur, and particularly in those cases that exhibit an ovum and epithelium around, as described in Malassez and De Sinety's work (Part I.) But the process I have described seems to me the true origin of small cysts owing to a catarrhal affection of the follicles. A large number are affected at the same time, and hence the similarity in size. I have observed in the young ovary how follicles are heaped together with little or no stroma between; absorption takes place by their septa; they are distorted; there is coalescence of several; the ova run together, many die, and in this way cystic spaces might be formed. I have seen in older specimens a possible origin of cysts out of the stroma, necrotic centres filled with leucocytes and small cells, also in a corpus luteum or blood sinus; but blood is apt to be poured out in the first instance.

In the ovary removed from the case of multilocular cystic tumour I found adenomatous new formation in process of active development, and I show you sketches of these. And, first, of a large amount of epithelium found in another ovary, also removed, which exhibits the epithelial tracts in a quiescent state. The epithelial tubes are no doubt derived from epithelium which has existed in the ovary from the earliest periods of development. As the primordial ova were entering the stroma with trains of epithelium from the germ layer (the epithelium is more active than the stroma in early foetal life) they were surrounded by epithelium and formed follicles. The epithelium remaining over and which was shut off or snared by the stroma, was of no further

service in the absence of ova, it was therefore retained in the ovary and remained located, at greater or less depth in the organ, as functionless tubes of epithelium. I examined a foetal ovary, and observed how the primordial ova got epithelium from the germ layer and from heaps of cells at the surface.

By some unknown ætiological cause, possibly brought in this excessive determination of blood and hæmorrhages, together with small cyst formation, the epithelium takes on activity. The flattened quiescent epithelium forms, first, cubical, then cylindrical epithelium, and in course of its activity forms offshoots and buds, also spherical masses, because in this way a greater amount of epithelium is contained in a given space, and once rapid proliferation has set in, there is no limit to its growth. I wish you to note first the flattened and obscure epithelium which becomes large, cylindrical, and highly stained.

In this connexion I refer you to what takes place in the lungs in pneumonia. The epithelium of the vesicles previous to the onset of the disease is flattened and situated regularly around the air vesicle; but when the agencies of pneumonia are at work it rapidly increases, it becomes cubical, cylindrical, and heaped together in great activity.

Fortunately the morbid influence at work leaves the lungs, and the epithelium quickly returns to its normal condition. In the case of the commencing cystomata of the ovary there is no return to the normal, and as the epithelium goes on multiplying and proliferating, all kinds of cylindrical epithelium are formed. Finally, it is according as the epithelium is in excess and forms little glandular sacs outwards, or the connective tissue stroma is very active and forms little papillomatous projections inwards, lined by epithelium, that we have the proliferating or the glandular cyst. Seeing that such are the pathological conditions and changes in the ovaries which were not markedly increased in size, and that they still contain healthy ova, it would be well to know if nothing short of the operation of oöphorectomy could be done to palliate, if not cure, the severe symptoms set up.

VI.—ADDRESS BY PROFESSOR MARIANO SEMMOLA, UNIVERSITY OF NAPLES, ON SCIENTIFIC MEDICINE AND BACTERIOLOGY IN REFERENCE TO THE EXPERIMENTAL METHOD. DELIVERED AT THE MEDICAL CONGRESS OF WASHINGTON, SEPTEMBER 1887.

Translated by JOHN BOYD, M.D., Slamannan.

(Continued from page 342.)

AT the present day medicine continues to be the victim of systems, and the system to-day is bacteriology. For those sincerely enamoured of medical progress, it would be vain to conceal this

perilous reality, as also it would be puerile and even dishonest to ridicule the great modern microscopic discoveries. True it is, that in the pages of Brieger, Hayem, Klebs, Sternbeurg, etc., the limits assigned to this new era are clearly demonstrated; but the current of mediocrity overwhelms all, misleads the less rigid, and fills with enthusiasm those who have no fixed scientific faith, ready to cry to-day Hosannah! to Christ, and to-morrow to Mohammed!

Without pretending to seek for the prophets of bacteriology in the poem of Lucretius, *De Natura Rerum*, and in the *Contagium Animatum* of the Middle Ages, I shall only state that the idea of living microscopic germs penetrating into us by the lungs, stomach, and integument, should be capable of developing special maladies is no novelty, and, formerly, was present to the minds of physicians under another name,—as witness the panacea of camphor which held its ground for nearly half a century. But the first ray of microbiology was shed undoubtedly by Cagniard la Tour, who formally announced in 1825 that if the yeast of beer caused sugar to ferment, it was only *in consequence of its generation and of its vitality*. No one could have then believed that these words comprehended the embryo of one of the most fruitful naturalistic discoveries of the nineteenth century. I cannot here trace out the exact rigorous paths of this grand discovery, or the details it had to surmount. But I cannot forget that the memorable researches of Rayer and Davaine in 1851 on the bacteria of carbuncle, and those of Pasteur on the transformation of lactic into butyric acid, and on the diseases of the silk-worm, are the point of departure of the modern scientific movement. Matters continued to travel by the right road for many years, and all seemed anxious to proceed with the utmost experimental rigour in the study of this new world of microscopy. Raulin was the first to disclose the vast horizon that opened itself before the medical savant, referring to the physico-chemical conditions requisite for the development of the microbes in connexion with the common mould known as *Aspergillus niger*. By demonstrating that the slightest trace of *nitrate of silver* in a suitable cultivative fluid was sufficient to prevent the growth of this mould, he might have infused great prudence and reserve in medical men.

But for more than ten years past microbiology, instead of proceeding with measured, secure tread, pretends to become the whole of pathology itself. A perfect whirlwind carried all away, and before the precious discoveries, such as the anthrax bacillus, the tuberculous, and some others, which are truly honours to science, from all corners came a mob of microscopic revelations of new microbes in every disease—every malady seemed to have found its own artificer.

For the malaria infection alone, after the *palmella* of Salisbury, they found out six or seven microbes, even to the new *plasmodium malariae*, destined, perhaps, to die before civil registration, inasmuch

as authenticative inquiries (Tommasi Crudeli) demonstrated as illusory their presence in the blood corpuscles—their alteration instead being due to a retrogressive metamorphosis of the red corpuscles (Mosso).

For the last five or seven years we cannot open a journal without finding therein registered the discovery of one or more pathologic microbes, and be it said, while the attention is distracted by so many unresolved pathologic problems, the easiest way of becoming celebrated has been, and still is, the announcement of some new bacillus or micrococcus in such or such a disease. It was a veritable universal blindness; pathology came by some to be proclaimed as almost a corollary of bacteriology. Every modern *clinique* found it indispensable to open next to the sick wards a cabinet for microbic culture, and, till now, no harm done. Such researches might be of future benefit, remaining always at their post. But to some here, it might appear incredible that funds being deficient to aliment these laboratories, while on one side a room was opened for the culture of microbes, on the other they diminished the number of the patients. Even in some great hospital, purely beneficent, while in the same day and hour the directors exhorted the medical staff to be more moderate in their prescription of flesh meats to the patients (threatening otherwise to diminish the number of the sick), yet meanwhile proposed a new sum to be expended on the broth and beef requisite for the culture of microbes in an adjacent institution. If these details were not a living reality, they might be regarded as mediæval legends; in fact, reading some of the diurnal dissertations on this point, there are found such romantic descriptions of microbic life, of the battles and strategies which the various phalanxes of them carry on in our organization, we might think that we have returned to the happy times of the acids, the vital spirits, the archei celebrated by Boc and Vanelmonzio.

The ingenuous public, only anxious for a certain remedy for each malady, applauds these discoveries enthusiastically, and the doctors rush with eager zeal to pronounce that their sole aim is to kill the microbes, and in this bitter war the system itself most frequently succumbs to the operation of the parasiticial cure. It is sufficient to recall the unlucky attempts made in divers cliniques to kill the tubercle bacillus which only serve to augment the misery of the phthisical. Carbolic acid and salicylic acid were devised to abort typhus and cholera. Yet a certain remorse assailed honest men of science, who, after sporting lightly with terrible poisons, imagining that some spiritual transactions would arrive, adopted sundry inoffensive but inoperative doses. This so far secured the patient from the dangers of the treatment, but not the doctor himself, who while acting the scientific, became guilty of the quackish. In this wise was also safeguarded the honour of progress with the public, which not knowing how much phenic acid was needed to destroy such or such a bacillus, seeing the patient survive, cried Hosannah! and

invoked all sorts of blessings on this new treatment, Darwinish ; and the *struggle for life* was called into play, and they thought to assassinate the tubercle bacillus by introducing into the respiratory organs the *bacterium termo*, fancied innocuous, but, in reality, aggravating the ravages of the first, as was demonstrated in laboratories and impartial cliniques.

What I wish to remind you is the systematic blinding influence of such a current of ideas, is impossible of solution even by the most crushing statistics of mortality. The doctor who is once blindfolded by a system, finds always good reason to console himself for his non-success, and continues to move on in the fatal path into which a preconceived idea has caused him to enter.

It is most true that man is incessantly besieged by myriads of microscopic beings, ever ready to invade his organization and contend with him for the materials he requires for his support ; and not less of verity is it, that in the struggle for life some of these entities, so infinitely little, are capable of causing revolution and bodily death. This is one of the grandest views—a conquest of modern biology—teaching that man with all his vaunted mastery of nature must himself humbly succumb to the inexorable laws of material circulation and power. This magnificent problem requires to be dealt with the most scrupulous rigour of experiment,—to be treated with the measured pace of former generations,—seeing that hasty steps have led to the exaggerated illusions which we now have to deplore. The true bacillary enemies require to be discriminated from the false, inasmuch as if some of these are capable of causing death in a few hours, it is also the case that with others we can swallow thousands of them with impunity in a draught of water ; the analysis of Miguel (air of the Rue de Rivoli) demonstrated that we inspire many millions of them in the twenty-four hours, enjoying the best of health all the while. Hence arises the natural doubt that with the minute fraction so terrible, compared with the immense majority of innocuous cases, may they not become, in relation to exceptional and invisible, morbid conditions of the organism which becomes invaded and overwhelmed ?

If thus the minute study of such microbes is necessary, it was also indispensable to investigate the peculiar mode of culture in which they appear,—a research fundamental yet inaccessible, when we consider the surroundings of these animalculi. This investigation was completely suppressed. No one has dared to confront it, and be this said to the credit of biological chemistry. Still, how can the experimental solution of a problem be made when one of the factors is ignored ? Is noticing a microbe in the blood of a patient sufficient to state that this is the cause of the malady ? What are the limits between the known microbes, perhaps necessary to normal life, and those exciting determinate diseases ? And can one of a pathogenic type invariably produce such morbidity wherever it penetrates into the organization ? This is

doubtful, according to Klebs's researches, who avers that in the same manner, then, these vegetable species that are poisonous, while others belonging to the same group, the same family, and narrowly allied to the preceding, are never poisonous, and never can become so, there exist exactly in the same way pathogenic micro-organisms, which may be confounded with other perfectly inoffensive which preserve their innocuity, under all circumstances, all their lives.

The experimentalists in general have shown themselves easily satisfied, and have always been hasty in declaring that their inoculated cultivations were derived from such or such identical malady.

But I appeal to the good faith of these distinguished colleagues to tell me what are the artificial diseases produced by the inoculation of those cultivations,—have they really reproduced the primitive natural malady from which they obtained the germs? Frankly I can only state that in human pathology I can only verify the anthrax bacillus, and perhaps also the tubercular.

But whoever can honestly affirm that he has seen a genuine access of malaria, fever, or the *plague*, or diphtheria reproduced, or any other of the so-called microbic diseases? The multiplicity alone of these to which so many of these maladies are ascribed testify against the presumptive results announced by so many experimentalists.

It may be objected that the difference of the medium may account for so many failures, the morbid bacteria electing always a given species of animals; some prospering on herbivora and never on carnivora; but it is likewise needful to admit a similar predilection for the microbe of human maladies.

The problem becomes always the more unattainable to our investigation, and this denied, does away with the claim of being regarded as a scientist.

Sometimes by such inoculations a morbid effect is produced, but not the original malady; sometimes the effect is *nil*, ascribed then to the bad medium, and, on the other hand, the one micrococcus may produce two different diseases, as for example the diplococcus and the meugococcus (Foa and Uffreduzzi), which last result destroys finally the pathogenic electivity of parasitic etiology.

In some grave disorders no microbe has as yet been discovered (hydrophobia, etc.), while in others the origin is clearly chemical, as demonstrated by ordinary common sense. Let some one, for example, while perspiring enter into a cave, and after a few hours is seized by a most violent rheumatism, which lasts him for two months. Do you ask me in such a case to go about seeking for the peccant microbe without seeing at a glance that the deep cutaneous functional perturbation was that which, with a chemical mechanism to me unknown, has produced the fever? Even when

in the blood of such a patient ten microbes were demonstrated, I would always assert that these developed themselves from pre-existing germs, one of the consequences, and noway the cause of the disease.

This example might be easily multiplied by many other serious disorders resulting from hygienic errors. The same may be said of the morbid influence, almost specific, which is ascribed to some microbes, which are altogether incapable of producing the troubles alleged to them, as in purulent osteomyelitis and acute endocarditis, calling in a demonstration which is the negation of the experimental method. When the pure culture of the *staphylococcus aureus* is injected into the veins of a rabbit, the animal may die, but, mark you, not of osteomyelitis, but from the so-called general infection, and no localization in bone medulla is verified. But if shortly after the injection a contraction or fracture of a bone of this animal is effected, then purulent osteomyelitis is produced (Weichselbaum, *Klinisch. Zeit und Streit Fragen*, Vienna, 1887). I freely ask of any honest savant, is it logically permissible to conclude and publish as a demonstrated fact that the *staphylococcus aureus* is then really the cause of this terrible malady in man and the poor rabbit? How can the electivity of this morbid entity for the physico-chemical condition of the medulla of a normal bone be admitted, when the intervention of another morbid cause has to be called in to produce the lesion, and how can it be regarded logically as the real cause of the osteomyelitis observed in nature?

The same may be said of ulcerative endocarditis, which is never produced when these bacteria, now considered as the cause of it, are introduced into the torrent of circulation of an animal; while after the injection a valvular lesion is produced mechanically by a sterilized sound, the bacteria then circulating in the blood proceed to fasten on the valves, producing a valvulitis with all its consequences.

The characters of these experiments are so complex, the causal elements so various that participate in them, that for the credit of the experimental method I am grieved that these could be seriously considered as contributions to scientific pathology.

The more than absurd attempts made or proposed would merit ridicule, if unfortunately the failures did not oblige us to deplore the tragical. I am unable to conceive how in a general disease already developed it would suffice to kill the microbes, granting them really guilty and lethally vulnerable, without killing the patient. To escape from the reproach of defective logic, the originators aver they propose to slay them in the primary fomite stage, in the intestinal canal in cholera, in the respiratory tract in tubercle, etc., similar to those who apply iron and fire in the treatment of malignant pustule. But the cases are totally different, as in the latter instance the adroit surgeon knows it in time before the organism has begun to participate in the infection.

In cholera, typhus, etc., this point of departure is impossible to be detected so early as to be of use, as in the characteristic clinical form of the malady it has become already general, and the destruction of the pathogenic microbes at their point of ingress would be of no value: the means adopted would be equally fatal to parasite and patient. We do not speak of the tuberculous, as besides this most serious, peremptory objection there lies this other, that the poor phthisic is doomed before the bacillus is perceptible in the expectoration, and that the terrible nutrition-perversion of his organization is certainly the most relevant part of the malady, and does not permit the physician to entertain any hope of recovery, even though all the tubercles in the respiratory tract were to vanish as by enchantment.

Not less absurd are the examples that the anti-parasitic therapeutists invoke in their favour—the truly miraculous results realized by Listerian surgery. Indubitably the germ-theory was that which inspired Lister in his surgical revolution, which will ever confer a crown of glory on the great English surgeon, and forms one of the most precious conquests of the second half of this nineteenth century. But Lister surrounding himself with these immense scrupulous precautions of purity, which constitute a large moiety of the importance of his method, and cleansing likewise the atmosphere in which more or less of the organization was to be nudely exposed, did no more in reality than to aim at preventing the ingress of these parasitic germs that envelop us into the portal that the old time surgeon unconsciously presented to them, without ever dreaming that being thrown on their prey they should produce the formidable effects known to all. In fact, there the organism remains perfectly extraneous; and it was absurd to claim the success of the antiseptic method of Lister to justify the internal parasiticidic method, that is directed against those germs that have already stormed the organization, and put it to fire and sword.

The same may be said of the appeal to the splendid microbicidic application executed to limit and combat the development of epidemics, inasmuch as the good effected by these in the destruction of microbes external to the system have nothing to do with the above treatment of general maladies already developed. But these still leave much to be desired, and, practically, we are yet far from possessing complete notions as to all the means by which epidemic and contagious diseases are diffused. After long clinical experience I do not hesitate to say that herein bacteriology has made exaggerated claims. At this day it is well known that the purely mechanic action of the bacteria, or the modifications they cause, in the intraorganic system are insufficient to explain the morbid symptoms of various maladies, or to furnish them with their appropriate nourishment. The most certain and formidable influences of these microbes consist in the complex chemical actions they pro-

duce in the blood-mass, with the production of various toxic substances, on the major or minor production of which, and the more or less rapid elimination of them, depends the defeat or the victory of the organization. This experimental discovery may doubtless become some day fruitful of fortunate curative applications, much more so than the parascidic attempts, inasmuch as investigations entirely chemical offer the only solid hope as regards the discovery of the intrinsic mechanism of diseases. This new direction of medical study, inaugurated by a galaxy of savants,—Wercke, Huseman, Gussenbauer, etc.,—which, while on the one hand markedly promising as to the future of pathology and therapeutics, on the other would suffice to render questionable all the conclusions of the parasitic etiology, even if these had not been prejudiced by the influence of the bad experimental method hitherto pursued.

With the conception of an innumerable series of toxic alkaloid principles, it is easily understood how the exact recognition of the physico-chemical intraorganic conditions is the indispensable element in the construction both of pathogenesis and therapeutics. The morphology of the microbes takes a secondary place. What mainly interests us is knowing how to render innocuous these inseparable accompaniments of our existence which cannot be obliterated from creation, and must, therefore, form part of the harmony of creation. Now this preservative idea is purely physico-chemical. We must either repeat with hygienists of all times,—keep strong and robust, preserve soundness of functions, etc., inasmuch as the stronger the organism disease is less easily contracted; or else if we desire to invoke scientific light, to be mathematically sure as to what ought to be done, science should tell us clearly and precisely what are these organic conditions in which such or such a microbe would be able to invade and produce its serious effects.

Take, for example, pulmonary tuberculosis. Ancients and moderns are equally agreed as to hereditary predisposition. That degeneration of the system that is the prologue of phthisis is what clearly enables the bacillus to dominate the lung, and hence it is exactly thus that a hundred persons might contract bronchitis upon bronchitis, and converse freely with consumptives without becoming phthisical, while one poor unfortunate, apparently with face ruddy and jolly, becomes a waster the first cold he catches, solely because he has had the disaster of phthisis being quartered on his family escutcheon. Now, honestly, what is the difference of intraorganic conditions between these two types? Science answers that in the second there is a suitable soil for the culture of tubercle; in the first, no. But this notion is an *ignotum per ignotum*. To say there is an organic predisposition or medium of cultivation matters little. The word predisposition is preferable, as it states the fact merely, without prejudging the explanation with a phrase which, scientifically speaking, insinuates an undemonstrated hypothesis. I want to know precisely in what this cultivation ground consists,

and, this ascertained, I could then propose to modify it,—that is, to institute the rational preventive treatment of tuberculosis.

I only know as yet that the best physiologic surroundings—elevated country air, good alimentation, in short, all that can strengthen the forces and augment the cell vitality—are the only means that can answer the resistance of the organization and bring about a cure. But in the majority of cases we don't succeed, nor can we call in the experience of the laboratory, which demonstrates that sometimes animals inoculated with the tubercle bacillus can wrestle with the lethal germ if kept at the highest point of their nutritive capacity. I would ask what analogy there can be in the diminished resisting capacity of an animal perishing in the laboratory with evil conditions of air, light, etc., and the long silent preparative preparation occurring spontaneously in the system with hereditary predisposition to tubercle, even when placed in most favourable surroundings? Between these two there is an abyss which, seen and measured by science, evokes no answer to the question, for science never strays into questions beyond the means at her disposal.

What I have now said as to the tubercle bacillus may be applied to all the maladies ascribed to microbic origin—cholera, smallpox, diphtheria, scarlatina, etc. What about the individual receptivity or non-receptivity of these? To speak of a good or bad culture soil is easy, but signifies nothing, and certainly constitutes no scientific progress which bacteriology would presume to have realized. What of the immunity conferred by a first attack of parasitic infection for a longer or shorter time, sometimes considerable against a second? The exhaustion of culture ground is invoked. But cannot this recover itself two or three times long after cure of the first attack and the organism returned to its normal condition? What is the difference between a youth having had scarlatina, and the immunity conferred thereby, from another perfectly well, but who not having had it, may contract it later on?

Let us take ten organizations all receptive of scarlatina, and struck by a commencing invasion of this epidemic. In one we have the typical scarlatina cured after eight days; another becoming ataxic on the third or fourth day, and the patient dying in the same manner as another in whom the angina becomes diphtheritic; a fourth, in whom there supervenes arthritis and suppurative adenopathy. In this case, then, is not merely the question involved of the ground more or less favourable to the culture of the scarlatinic microbe, but we must determine also what are the physico-chemical individual conditions by which the same infective agent has so radically modified the chemical products of its fabrication from which arise the fatal consequences on the second or third day of the malady? Be this said to humble those who pretend to proclaim bacteriology as a clinical philosopher's stone. As to the candid laboratory pathologists, I admire their ingenuity and excuse them, inasmuch

as they have never seen a patient with fulminating diphtheria or hæmorrhagic smallpox,—hence they may believe in good faith that pathology can be regenerated by culture of bacilli in broth or potato slices, etc. If you suppress the scientific idea—the precise determination of this culture ground—an idea corresponding to the famous organic predisposition, equally admitted by the ancients and the moderns, then farewell to scientific medicine. We must resign ourselves, I doubt, to clinical observation pure and simple. Admittedly we have made progress in this branch; we have acquired valuable notions, but these are far from being available even for the foundations of therapeutics, hence fancy is. Now, I believe there can be no edifice half true, half false—half experimental and half hypothetical—as then we must repeat with Victor Hugo,—

“Je cherche un édifice et je trouve une ruine.”

I might have cited still simpler examples, as those of Delefond and Bourguignon on the scabies of domestic animals. These have demonstrated that the acarus, placed on the skins of well-nourished healthy animals,—sheep, for instance,—cause no infection, but when in bad condition, the scabies spreads and flourishes; but if better nourished and placed more favourably the acarus disappears, and the animal regains its health. Also the human clinique presents examples of this physiological therapia owing to greater resistance.

I hold that all must honestly confess that the science of to-day cannot proffer the solution of these problems. Can the most learned bacteriologists give a lucid explanation of the mechanism whereby mercury, quinine, iodine, etc., perform such curative miracles? It might be said that these systematic progressists envy the past, and in their professions imitate the fly placing itself on the back of the ox, and complacently exclaiming, *Aramus!*

Few words are necessary to demonstrate how the systematic idea dominates, even to the point of profiting by the assured empiric facts, imposing on them explanations at variance not only with experimental logic, but with common sense. Thus it is well known that corrosive sublimate is one of the most powerful parasiticides; it destroys the germs of infection in lotions, injections, etc., in the proportion of 5–1000 or 1–1000. Here we have an assured fact, but one called in to explain the mechanism of the antisymphilitic power by the most simple peremptory reasons. Admitted as demonstrated (which it is not) that constitutional syphilis is a general disease, originating in a special microbe. If the mercurial salts circulated in the organism in the form of deuto-chloride there might be grounds for illusion. But it is notorious that they are absorbed in the form of albuminate, and that in contact, whether with excess of albumen or chloride of sodium, the albuminate of mercury is free, and makes its way. Now, this substance has nothing of the antiseptic virtue of the corrosive sublimate, because this last combines with the albuminoid material of the pathogenic

germs (Hayem), and the former, from previous combination, being already innocuous, the microbes may thus continue to live peaceably.

Admitting, even erroneously, that the constitutional syphilitic microbe circulated solely in the blood, and adopting a solution even less than 1-5000, a calculation requires to be made of the proportion requisite to sterilize the whole of it. Allowing 5 kilogrammes as the blood-mass of a body of medium size, according to the parascidic results *in vitro*, there would require not less than a gramme to be administered at once, to be present at the same time, and circulating in the sanguineous torrent. Leaving out the serious consideration that this dose would inevitably constitute a lethal case of acute mercurialism, I shall only say that the most verified experience shows that seventy to eighty hypodermic injections are sufficient to cure a grave specific case, adopting half a centigramme of deuto-chloride of mercury—in all, 30 or 40 centigrammes, that is a fifth or sixth part of the minimum necessary according to the laboratory! If to this you add that, after the third or fourth hypodermic injection, you find the urinary elimination of the mercury already commenced, which clearly shows that the dose of albuminate of mercury circulating at the same time is much inferior to the dose of the corrosive sublimate adopted hypodermically. The same reasoning might be applied to the mechanism whereby the cinchona salts cure the paludal malaria, etc.

But with all this you are not to believe that medicine is to continue always in the path of traditional empiricism. An accusation of this sort might easily be made by those who, objecting to the rigour of the experimental method, have progress always on the lip and from the chair, while in practice they deign to become more empiric than their predecessors, with a polypharmacy humiliating for science, and with a swinging bundle of new remedies miraculously glorified and soon pitilessly forgotten. No, gentlemen, empiricism is dead for ever.

Modern civilisation, investigating organic and inorganic nature with true scientific methods, is in entirely new conditions. Humanity now understands that its scope is no longer passive contemplation, but progress and action. The modern physicians who desire to promote truly scientific medicine must apply to former empiric truths the illumination of chemistry, physiology, and pathological anatomy. This illumination is in part already commenced, forming the first transformation of the empiric into the scientific era. With new and exact means of inquiry comes the period of research into the how?—the study of the conditions of existence of the various pathologic and therapeutic phenomena; and thus has begun that slow evolution of experimental progress that alone can conduct to the definitive constitution of scientific medicine. But if they deviate from the right path, then will be seen what has occurred from the middle of the century until now, while the auxiliary

sciences throw shining light on mysterious problems of pathology, physicians mastered by impatience prefer hypothesis to rigorous experiences, deferring the longer the definitive solution.

I am happy to be able to declare this to you, gentlemen, worthy children of the country where liberty and patriotism are the natural indispensable allies of scientific progress, fundamental conditions of experimentalism, and of the nationality of thought, or rather the obliteration of whatever intellectual slavery exists, which is a hundredfold more degrading and dangerous than the servitude of chains. It is true that science has no fatherland, and still less boundaries, but it becomes universal only after being already constituted; whereas when in the state of evolution—that of truths not yet demonstrated—each nationality has a special manner of being and feeling; hence each population impresses a special character on its studies. To that people possessing glorious traditions and unavoidable duties, which would prefer to imitate rather than create, I would recall the saying of Virchow at the congress of German naturalists at Hanover (1886),—"Science is unproductive without the national character;" and that Germany itself, by the mouth of Oken, proclaims to those who would make their scientific progress to consist solely in copying her: "Imitate no one, if you wish your science to revive and reassume your ancient greatness."

Nowhere can this maxim be better re-echoed than in this great territory of modern liberty. May the alliance between experimental and independent science ever continue in medicine—an alliance that in its struggles has no need for cannons, for bayonets, or victims; it seeks to maintain its unsullied banner, on which should ever remain inscribed the reply of Desgenettes, surgeon-in-chief to Napoleon I., when he asked him to disembarass him of the sick and wounded: "*Mon métier à moi est de conserver et non de détruire.*"

VII.—EARLY CONTRIBUTIONS OF ANATOMY TO OBSTETRICS.

By A. H. F. BARBOUR, M.A., B.Sc., M.D., F.R.C.P.E., Lecturer on Midwifery and Diseases of Women, Edinburgh Medical School; Assistant Physician for Diseases of Women to the Royal Infirmary; Junior Assistant Physician to the Maternity Hospital; Physician to the Women's Dispensary; Inspector of Examinations in Midwifery; Corresponding Fellow of the Royal Academy of Medicine of Turin.

(Read before the Edinburgh Obstetrical Society, 9th May 1888.)

(Continued from page 335.)

PASSING from the work of Berengario we come to the three other great contributions in the sixteenth century made by anatomy to obstetrics—those of Vesalius, Eustachi, and Fallopio.

Vesalius (1514–1564), a doctor's son, a native of Brussels, studied arts at Louvain, and medicine at Montpellier and Paris.

He then returned to Louvain, where he began to teach anatomy, of which he became Professor at Padua in 1537, and his name thus comes to be linked with those of Fallopio and Eustachi in the Italian School of Anatomy. He worked chiefly at human anatomy, and, according to Choulant, secured the services of the best artists of the day to reproduce his preparations. He is even said to have employed Titian, but as that artist was upwards of sixty years of age when Vesalius published his first plates, it is more probable that Titian deputed his pupil Stephen von Calcar to do the work. In 1538 he published his first six plates at Venice, and in 1543, when only twenty-nine years of age, his immortal work *De humani corporis fabrica libri septem*. Further, in 1546, in a letter *De radice chinæ epistola*, he criticised Galen's work, showing that that anatomist dissected not men but monkeys, and mixed up his conjectures from the dissection of animals with old descriptions—whence his mistakes as to the uterus and other organs. The College of Physicians' Library contains a 1555 edition of the seven books on Human Anatomy¹ and a 1564 edition of the plates.²

In the illustrations of the fifth book of his anatomy we have very fair representations of the uterus, cervix, and vagina—a great stride forward from the rude illustrations of Berengario. First, we see (Fig. 24) the abdomen laid open, all the intestines cut away except the rectum, and the mesentery and omentum drawn aside so as to show the position of the uterus and bladder seen through the brim. Fig. 25 is similar, only the peritoneum has been dissected off. In the description he says, "we have as far as possible deprived the uterus of the outer covering which the peritoneum affords to it, removing all the membranes as thoroughly as possible, that we may see the vessels which carry the material of the semen to the ovaries, and again the seed from them to the uterus." From the plate and this description it is evident that Vesalius did not understand the Fallopian tubes. Fig. 26 shows the uterus removed from the body and seen from below; while Figs. 27 and 28 are very good drawings of the uterus and vagina removed from the body, the uterus being divided coronally. We have reproduced this figure, as far as it shows the uterus, in our illustrations.³ In Figs. 28 and 29 we have the uterus of the dog and the cow. Fig. 30 shows a pregnant⁴ uterus laid open,

¹ *Andreæ Vesalii Bruxillensis, scholæ medicorum Pativinae professoris, de Humani corporis fabrica, libri septem*. Basileæ, ex officino Joannis Oporini, anno salutis per Christum partæ MDLV. mense Augusto.

² *Anatomes totius, cere insculpta delineatio, cui addita est epitome innumeris mendis repurgata, quam de corporis humani fabrica conscripsit clariiss. And. Vesalius*, Paris, MDLXIII.

³ See Plate in September number of this Journal.

⁴ Is this from a human subject? Haller says in a foot-note (*Op. cit.*, tom. i. p. 182):—"Vesalius confesses that he had rarely cut into a gravid uterus (*Rad. Chin.*, p. 207) and had not yet dissected one when he was publishing his work."

also the foetus and membranes; Figs. 31 and 32 the ovum from the dog and the ox. In the edition of anatomical plates referred to we have most of these figures reproduced in one plate, and in addition exactly the same drawing of the uterus as we have seen in Moschion's work, but with different letters and modern description. The mode of representing the ovaries and vessels resembles the other drawings of Vesalius; it shows the uterine artery which was not known to Moschion; all the other illustrations of Vesalius are apparently of his own dissections and no mention is made of this illustration as being borrowed from Moschion: for these reasons we think that the illustration in Moschion's work is a modern interpolation, which would deprive Moschion of the credit of being the first to give an illustration of the uterus.

Of the life of Vesalius, after publishing his immortal work, Haller says:—"The very fame of Vesalius spoiled his splendid work. Having become the first authority by his success in treatment, he spent the great part of his life after this at the court of Charles V. and Philip II.—a most acceptable court-physician, but shut out from all anatomical work except sometimes the examination of men dying from some unusual disease. Hence he did not add to nor correct the new edition of his great work in 1555, as might have been expected from his zeal for anatomy." He died in 1564, on a pilgrimage to Jerusalem, the generally received reason for which journey Haller endorses: he had cut down on the heart of a man who had just died so as to feel it beating with his hand, and through the clemency of Philip II. was allowed to expiate this crime by a pilgrimage to Jerusalem; on his way home he was called to take the place of Fallopio at Padua, but was wrecked on his journey thither.

Eustachi (1500-1574).—The anatomical engravings of Bartolomeo Eustachi, or Eustachius as he is more commonly called, were, according to Sir Wm. Turner, completed in 1552 (nine years after the impression of the work of Vesalius), but were not published till nearly two centuries afterwards (1714) by Lancisi.¹ This book is in the College of Physicians' Library. There are two plates of the uterus—one showing the arrangement of the vessels, especially their relation to the round ligament. The descriptive notes to the plates are by Lancisi. The next plate shows the external genitals and the fundus as seen through the brim; the uterus and vagina removed from the body, seen from the outside and in coronal section; the human foetus with its membranes (chorion and amnion) and the placenta lying separate.

With *Gabriel Fallopio*, or Fallopius as we usually call him

¹ Tabulæ Anatomicae Clarissimi viri Bartholomæi Eustachii quas è tenebris tandem vindicatas et sanctissimi domini Clementis xi. Pont. Max. munificentia dono acceptas præfatione notisque illustravit, ac ipso suæ Bibliothecæ dedicationis die publici juris fecit Jo. Mariz Lancisius. Rome, 1714.

(1523-1563), Haller¹ makes the Italian School of Anatomy begin, "which from the Revival of Learning during the following century was supreme, so that there were few anatomists who did not go out from it." In the course of a short life (he died at forty) he greatly enriched anatomy. Besides being unwearied in research, he was a blameless man, "unjust to no one, except, perhaps, Eustachius—a bitter man to whom none of his contemporaries were friendly."

His chief work was his Anatomical Observations published at Venice in 1561; the earliest edition of it in the College of Physicians' Library is in the complete works of Fallopius, published at Frankfort in 1600.² In these Observations³ he devotes several paragraphs to the organs of generation in the female. After mentioning that the term cervix is often wrongly applied so as to include vagina, and that it should be limited to that part in which the os uteri is, he describes the clitoris as follows:—

"It springs by a double origin, one from each bone of the pubis, and in both the aforesaid origins it has plainly muscular tissue, though little for the size of the structure. There are vessels running along the dorsum just as in the male member, and it ends in a certain extremity which looks like the glans, being contained in a sort of skin like the prepuce, which skin unites those two structures of the external genitals which are called by the Greeks, especially Soranus, Pterygomata. All this part of the pudenda as it is small and hidden in the more fatty part of the pubis has thus escaped the notice of anatomists, and so escaped it that I have been the first to lay bare the same in recent years."

Of the hymen he says:—

"There is another structure to be noted in this sinus in women, which anatomists sometimes find and laugh at those who place a membrane there. But to my mind they are not thus to be laughed at." And he goes on to describe it as a membrane not entire, "but perforated in the middle by a hole of such a size that in adults the point of the little finger can easily enter." He refers to Soranus's difficulty with regard to it, and says: "For the satisfaction of that great man let me say that the membrane does not seem to me very firm, and is perforated like a ring."

Of the uterus he writes:⁴—

"I now come to the uterus, in which, if I explain my view openly, I doubt not that you will smile, since I am about to say things which not only contradict the accounts of the ancients and moderns, but also overturn completely certain teachings, or at least make them totter. Nevertheless, I shall not desist nor fear the quiet smile of a learned man, since I shall recount what I have seen again and again with my own eyes, and also showed openly to others."

¹ *Op. cit.*, tom. i. p. 218.

² Gabrielis Fallopii Mutinensis Physici ac Chirurgi præclarissimi in felicissimo Gymnasio Patavino olim rem Anatomicam et Chirurgicam admirabili cum laude profitentis; Opera omnia, in unum congesta et in medicinæ studiosorum gratiam excusa, etc.: Francofurti apud hæredes Andræ Wecheli, MDC.

³ *Opera Omnia*, p. 420.

⁴ *Op. cit.*, p. 421.

He then describes the round ligaments:—

“They are not muscular, although they appear somewhat red and fleshy, but are twin fibrous processes springing from the sides of the uterus, and sometimes filled up with a fleshy cord so that they look red. Ascending to the inguinal region and perforating the peritoneum just as the seminal vessels do in the male, they pass out through the opening of the tendon of the descending oblique muscles; . . . and when outside the abdomen, they turn slightly towards the pubis, and there end through being lost in the fat.”

Of the ovaries, he says:—

“All anatomists assert with one voice that semen is made in the female testes, and that they are found full of semen, which I could never see although I gave no small labour that I might learn this. I have seen in them indeed some vesicles as it were turgid sometimes with water or a watery fluid, sometimes yellowish, sometimes limpid; but I have never seen semen except in the spermatic vessels themselves or those called ‘excretory.’ They affirm also that those spermatic vessels spring from the ovaries, and are united completely to them, and end in the so-called horns of the uterus, which is not at all the case, since I could never see those seminal tubes united to the testes unless the uterus was pathological.”

After commenting on this, he thus describes the tubes, with which his name has ever since been associated:—

“That slender and narrow seminal duct rises, fibrous and pale, from the horn of the uterus itself; becomes, when it has gone a little bit away, appreciably broader, and curls like a branch (*capreolus*) until it comes near the end, then losing the horn-like curl, and becoming very broad, has a distinct extremity which appears fibrous and fleshy through its red colour, and its end is torn and ragged like the fringe of well-worn garments,¹ and it has a wide orifice which lies always closed through the ends of the fringe falling together; and, if these be carefully separated and opened out, they resemble the orifice of a brass trumpet. Wherefore since the seminal duct from its beginning to its end has a likeness to the bent parts (*capreoli*) of this classic instrument, separate or attached, therefore it has been called by me the *Uteri Tuba*. These are present not only in the human bodies, but also in the sheep, cows, and all other animals which I have dissected.”

He further describes² the blood supply to the uterus, showing that there are two sources on either side—what we now speak of as the ovarian and uterine arteries—and that there is an anastomosis not only between these vessels on the same side, but between those of opposite sides. It is noteworthy that Fallopius made out this anastomosis before the injection of vessels was used as an aid to dissection.

“The spermatic arteries and veins (although anatomists may affirm that, as in man, they mingle before they come to the ovaries) are sometimes carried without uniting³ beyond the ovaries, and thus go so plainly to the

¹ *Extremumque lacerum valde et attritum est veluti sunt pannorum attritorum fimbriæ.*

² *Op. cit.*, p. 422.

³ “*Sejunctæ aliquot ultra testem feruntur.*”

uterus itself and the seminal duct [Fallopian tube], which most of them surround, that they can be recognised by every one; for there belongs to the uterus a double set of arteries and veins—the one the seminal [ovarian], coming down from above; the other those which spring from the sides of the vessels of the sacrum. The latter, they say, are spread over the sinus, or (to use their term) cervix; the former over the uterus itself or fundus. But it should be known that these upper vessels, before they are all spread out, anastomose in the uterus with some from below, and thus united enter the part of the fundus near the cervix or the sinus [vagina] itself; also that, although now and then they go to join other vessels,¹ some branches from those lower vessels pass upwards to supply the fundus, which, as soon as they enter the substance of the uterus, anastomose, or are united with the aforesaid vessels from above. Thus there is always present a continual anastomosis, either outside the uterus or immediately beneath the peritoneum which covers the uterus, or in the substance of the latter. I think that this anastomosis has been neglected by anatomists, because during pregnancy the very copious supply of blood brought by the seminal vessels (as is evident in some pregnant persons) may be discharged into the vagina through these lower veins, whereas otherwise the monthly discharge is got rid of directly through the fundus uteri. I could not be laughed at by anatomists were I to say that in the substance of the uterus itself some twigs of those vessels of the right and left side are so united that the vessels become one. I do not say all of them, but some; and therefore that there is a community between the vessels on the right and left, and that nutriment is carried to the fœtus by both kinds of vessels, although the umbilical ramifications [in the placenta] throw their roots into one side of the uterus only.”

In the next paragraph he touches on the anatomy of the pregnant uterus,—

“One thing, finally, I have observed in all the women whom I have dissected who died either during or immediately after or before labour, that the piece of flesh which is called by me placenta always occupies or sticks to one of the two portions of the uterus in which ends the opening of the seminal duct (Fallopian tube); and this also I have noted, that this opening is, as it were, the centre of the whole space occupied by the placenta.

“In those parts which belong to the fœtus I have some points in which I differ from the rest of anatomists,—(1st), This, which I said when I was treating of the umbilical arteries, that without doubt the arteries which are carried with the umbilical vein and urachus to the fœtus are always double in nature,² though often there is one only, which, as it is formed of the two large arteries of the chorion joined, also divides into two before entering the umbilicus, so as to pass to the arteries of the sacrum; (2nd), That the fleshy cake which coalesces with the uterus for the sake of the security of the vessels is never to be considered among the membranes of the fœtus.

“Although some say that Galen called it chorion, this is false; for Galen knew it well, not, indeed, in man, but in other animals, and calls it ‘flesh concentered round the mouths of the vessels,’ but not chorion.”

It is worthy of note that Fallopius here speaks of having dissected cadavera from women in labour and post-partum, but the passages quoted are all that he tells us of the anatomy of the pregnant uterus. In the next paragraph he says that Hippocrates

¹ In conjuncta inferantur—lit., are borne into joined vessels.

² Nempet perpetuo geminas esse arterias.

called this concretion (placenta) "cotyledons," which leads him into an excursus¹ on the history and use of that term. He shows that Diocles, quoted by Soranus, held them to be mammæ; Praxagoras and Galen to be crater-like eminences at the mouths of vessels; while Aristotle described them as little cups (κοτύλοι, used by Homer for "cups"), convex towards the uterine wall, with nutritive material heaped up in them (like a phlegmon producing a tubercle), which exudes into the foetus.

"Therefore the cups (or cotyledons) are those things of which Aristotle spoke, and truly they are not found in the human or canine uterus as anatomy teaches, but only in that of horned animals and of those mentioned by Aristotle; . . . and only in pregnancy."

At the conclusion of this argument he points out the error of Hippocrates with a grace and dignity, as well as a desire to put the best construction on what another had taught, worthy of imitation:

"This being settled, what shall we say if Hippocrates mentions 'cups'? May the Manes of so great a man spare me, a man who was the presiding deity of the medical art, when I say that he spoke the truth in words that deceived! For if any one would doubt (my opinion) that crude or cold humours or even mucus contained in the uterus are the cause of abortion, he would walk blind in daylight; but that these humours are contained in cotyledons is false, because there are no cotyledons. In the mouths of vessels these humours may be contained, but being there they would by no means cause abortion."

Fallopian made another contribution to Obstetrics in his description of the bones of the foetus in the *Expositio de Ossibus*—in Haller's quaint language, "Ossa enim foetum primus inter mortales contemplatus est."

These four men—Berengarius, Vesalius, Eustachi, and Fallopio—made the chief contributions of anatomy to obstetrics during the sixteenth century; and with that century our study of the "early contributions" should end. Important their contributions were—so important that on the first superficial glance over the field it seems as if the harvest were reaped, and little left to be gathered in. Dr John Barclay, the Extra-Academical Lecturer on Anatomy in Edinburgh at the beginning of this century, has thus wittily compared the work done by these men with that of those who followed them:—

"Gentlemen, while carrying on your work in the dissecting-room, beware of making anatomical discoveries; and, above all, beware of rushing with them into print. Our precursors have left us little to discover. You may perhaps fall in with a trifling supernumerary muscle or tendon, a slight deviation or extra branchlet of an artery, or perhaps a minute stray twig of a nerve,—that will be all. But beware! Publish the fact, and ten chances to one you will have it shown that you have been forestalled long ago. Anatomy may be likened to a harvest field. First come the reapers, who, entering upon untrodden ground, cut down great store of corn from

¹ *Op. cit.*, pp. 422–424.

all sides of them. These are the earliest anatomists of modern Europe, such as Vesalius, Fallopius, Malpighi, and Harvey. Then come the gleaners, who gather up ears enough from the bare ridges to make a few loaves of bread. Such were the anatomists of last century—Valsalva, Contunnius, Haller, Winslow, Vicq d'Azyr, Camper, Hunter, and the two Monros. Last of all come the geese, who still contrive to pick up a few grains scattered here and there among the stubble, and waddle home in the evening, poor things, cackling with joy because of their success. Gentlemen, we are the geese."¹

Dr Barclay's humorous statement does not hold true of the anatomy of obstetrics, for while the contributions hitherto made by anatomy to obstetrics deal principally with the anatomy of the uterus before pregnancy, a little consideration will show us that the field of the anatomy of pregnancy and labour was before the eighteenth century unexplored.

To throw a bridge over the gap between the "early contributions" and the work of more recent date, we shall just touch upon one or two names familiar to us in obstetrical anatomy, and thus join the old with the new. In the seventeenth century we have two names—*Malpighius* (1628 to 1694), and *Graafius* (1641 to 1673). Malpighi was Professor of Anatomy at Messina and Bologna, and published in 1681 his monograph, *De Utero Epistola*, in which he describes the mucous glands in the uterus of the calf, the muscular fibre of the wall, and the corpora lutea of the ovary. *R. de Graaf*, whose name has become immortal in the Graafian follicle, published at Leyden in 1672 his *De Mulierum Organis Generationi inservientibus*; and shortly before his premature death, his *Partium Genitalium Defensio*. In the former of these he describes—in the human female—the uterine vessels and those of the foetus, the corpus luteum, and the mucous glands of the uterus.

In the eighteenth century, most of the names group themselves round the illustrious *Haller* (1708-1777), and we cannot refrain from quoting from a bit of autobiography he gives us² in his work to which we so often have had occasion to refer. "I may be allowed here to review my life—that part which belongs to anatomy. Knowing too well how unequal I was to the great task I undertook of building up physiology from the foundation, I shall show, if I do not mistake, that I made some efforts to get nearer the truth." After dissecting animals at Tübingen under Duvernoi, who used dogs when human bodies failed, he went a mere boy to Leyden to attend Boerhaave's lectures. "I heard Boerhaave's lectures," he writes, "with incredible pleasure."

"That incomparable man gave his teaching so honestly, clearly, and fully, that while he might have equals in matter, he had none in the art of teaching. I worked alongside of Albinus with no small reward, imitating on the opposite side of the body what this distinguished man

¹ *The Story of the University of Edinburgh*, by Sir Alex. Grant, Bart. London: Longmans, Green, & Co.: 1884. Vol. ii. p. 390.

² *Op. cit.*, tom. ii. p. 195.

was demonstrating to his industrious students on the other. . . . I often went to the excellent old man Ruysch, frequently with commissions from Boerhaave. There was in him the greatest zeal, patient work in injection, and he was very skilful in preserving bodies. In 1727, I went to England, and became acquainted with James Douglas, from whom I might have derived much greater benefit—for the great man allowed me to share in the work which he was carrying on diligently in completing the description of the bones. I saw, and with no small admiration, his great wealth of skeletons and bones—some lying with their ligaments in salt water, others cut in every direction with a saw. But the great rush of people from the whole of Europe for the inauguration of the new king—that prince to whose munificence I owe much, George the Second—drove me to Paris. There I heard Le Dranum as a guest, and dissected with him. I confess (may the good old man forgive me) that I was disappointed at the paltriness of what was called the theatre, and by the too rapid dissection which could not investigate anything very carefully. Further, when I saw Winslow tracing out the most minute parts of the human structure, I was not satisfied until, along with a surgeon de la Garde, I got at my own expense secretly a supply of dug-up dead bodies in which I might examine the nerves and vessels of the heart, the muscles of the hand, and other things, more carefully and with something of the detail of Winslow. But the spiteful curiosity of a labourer overturned this opportunity of learning; for having dug under the wall to see what I was doing, he reported my name to the guardians of public safety. To escape heavy penalty, perhaps the galleys, I had to hide, and have the bodies removed.”

After other appointments, we find him settled at Göttingen. Of his work there he says:—

“I had only to build an anatomical theatre and procure a supply of bodies. I arranged that the bodies of criminals should be brought to me from all parts to be dissected, that those of the illegitimate should also be handed over, and thus I got an ample supply of cadavera, especially of children. It was thus easy for me to prosecute with greater zeal the anatomy of the arteries, which at that age could be better demonstrated than the muscles, and had been incompletely, even erroneously described, for the beautiful injections of the Belgians were directed rather to the intricate arrangement of the minuter vessels than to the more general distribution called popularly “Angiologia.”

Haller had the faculty not only of continuous labour himself, but also of setting others to work; and if we owe a great deal to him, we owe much also to his students.

“Further, another idea very fortunately occurred to me. When I saw numerous eager young students flocking to the new academy and seeking the highest honours, I advised each to take up for himself some difficult point of anatomy or physiological question, to which he might devote himself for two winters. There were plenty of cadavers at their command; I helped the studies of the young fellows as much as I could, and made many investigations (*experimenta*) on different animals—in fact, an incredible number. Accordingly, as several of the young men were simultaneously devoting their leisure, which was greater than mine, each to a single part of our noble art, much more progress was made than any industry of mine alone could have effected. To this day it gives me the greatest satisfaction to turn to the exquisite descriptions of the nerves by Meckel, Anderschen, and others, that careful study of the sheep which Kuhlemann undertook, and the admirable anatomical pre-

parations of some of the rest of the young men. Nor has light failed to shine from this Institution upon Physiology.

"But as human affairs are imperfect, I, who had been called from clinical practice to anatomy, was compelled to lay aside such inquiries; being driven from lecture-room and chair by failing health, loss of sleep, and a weakness of the right hand which threatened paralysis. I had to sacrifice honours, rewards, and the hope of learning and achievement dearer than all these, to the preservation of life and health. Labours of a very different kind were awaiting me in my native land, which those coming after me will hardly believe to have been imposed upon me, unless they be familiar with the genius of free republics.

"Nevertheless from the hours claimed by my country, I snatched some for myself. As opportunity offered I measured carefully the motion of the blood, investigated the form of the bones and the rest of the fœtus, dissected pregnant animals, studied the anatomy of brain and eyes, and worked also at pathology; I thus kept up in some degree my practice in anatomy."

He speaks thus regretfully of having to give up his time to public affairs:—

"I have always praised the good fortune of Albinus, and should almost have envied it if that loftiest of men had not used so well the great opportunity he had. This distinguished man gave more than fifty years to a single art, drawn aside by no other duties; he was able to forego all honours for the perfecting of his subject."

The latter part of his life was given to legal and political work, and he writes thus sorrowfully of his having to give up his favourite studies for public duty:—

"My lot drove me to the different departments of law, to a laborious magistracy, to the care of the Republic, to difficult negotiations with neighbouring states and kings, and to various other duties. Therefore let a generous posterity pardon me if I have not done more than I was able for, have left here and there some things incomplete, and have been compelled to take some things from others since I could not have observed everything myself. Let them, I pray, take the will for the deed."

To almost all of those whose names are mentioned in this interesting bit of autobiography, Obstetrics is indebted for some anatomical contribution. *Albinus*, with whom Haller dissected in Paris, has given us seven plates of the gravid uterus, published at Leyden in 1747.¹ The plates are drawn full-size, and are beautiful as works of art, but they lack the accurate anatomical detail which characterizes Hunter's work. "The excellent old man *Ruysch*," a native of the Hague and professor at Amsterdam,

¹ *B. S. Albini Tabulæ septem uteri mulieris gravidæ cum jam parturiret mortuæ. Lugduni Batavorum, MDCCXLVIII.* In the College of Physicians' Library we have these bound up with his magnificent plates of the bones and muscles. Plate I. is an outline of the figure of the uterus; Plate II., one-half of the uterine wall removed, showing the ovum in the cavity; Plate III., one-half of the membranes in addition removed to show the fœtus; Plate IV., fœtus removed, showing placenta attached to the uterine wall; Plate V., uterus and placenta removed from body; Plate VI., the complete ovum; Plate VII., uterine cavity with ovum removed, showing placental site. An appendix shows the attitude of the fœtus in utero.

is known to us as the author of the "*Tractatus de musculo in fundo uteri observato, antea a nemine detecto*;" in this he describes the muscular fibre of the fundus uteri as forming a *detrusor placenta*. The *James Douglas*, whose wealth of skeletons and bones excited Haller's admiration, is better known to us as the describer of the peritoneum round the uterus, and especially of the pouch which bears his name.¹

To the idea which fortunately occurred to Haller of advising his students to take up an anatomical point, and work at it for a graduation thesis, obstetrics is greatly indebted. Volume V. of his *Selected Theses* on anatomical subjects is devoted to the *Organs of Generation*.² In it we find, amongst others, his own dissertation on the "Oblique Situation of the Uterus, and the Seminal Vessels;" Naboth's essay on "Sterility in Women," which survives in the name of the Nabothian follicles of the cervix; also Vater's essay on the "Gravid Uterus," giving a drawing of a six-months' pregnant uterus—one of the very early representations of the Gravid Uterus.

To Edinburgh men it will be of interest to know that amongst Haller's students was *Donald Monro*, son of Alexander (Monro primus), the Professor of Anatomy in our University. He read before an Edinburgh society a paper³ on the maternal and foetal vessels in the placenta, showing by injection that there is no communication between them. His father had read before the same Society an elaborate essay on the "Nutrition of Foetuses;" and in the same volume we have two essays on the Anatomy of the Pregnant Uterus, from his younger brother Alexander Monro, "student of medicine in the University of Edinburgh."

Another of Haller's pupils was the distinguished anatomist and obstetrician *Ræderer*, whose seven plates⁴ of the gravid uterus are less diagrammatic than those of Albinus, the drawings of cervix

¹ A Description of the Peritoneum and of that part of the *Membrana Cellularis* which lies on its outside, with an account of the true situation of all the Abdominal Viscera. London, 1730.

² *Disputationum Anatomiarum Selectarum. Vol. V. Organa generationis, Collegit edidit præfatus est Albertus de Haller.* Gottingæ apud Viduam Abram Vandenhœck, Acad. Typogr. MDCCL.

³ The Dissection of a Woman with Child; and Remarks on Gravid Uteri: By Dr Donald Monro, Physician at London. Article 17 in *Essays and Observations, Physical and Literary*, vol. i. p. 403. Edinburgh, 1754.

⁴ *Icones uteri humani observationibus illustratæ.* Gottingæ sumptibus Vandenhœckianis, MDCCLVII. Plate I. represents a parturient uterus seen from the outside; Plate II., same uterus laid open to show foetus and placenta in their natural position; Plate III., same with foetus removed to show placenta; Plate IV., gravid uterus at the sixth month, seen from the outside and with vessels injected; Plate V., foetus and placenta in natural position; Plate VI., internal surface of same gravid uterus as V., showing filamentous tunic of secundines, openings of tube and of cervix into uterus, and cervical canal laid open; Plate VII. shows internal surface of the cervix, virgin uterus from outside and in coronal section, ovary of virgin, Graafian vesicles, ovary of pregnant woman, and various corpora lutea.

and ovary being especially good. Along with the plates of Albinus and Røederer we must mention those of another famous man, although his name is not connected with that of Haller. In 1754 *Smellie* published in London his beautiful series of plates, which are so well known to English obstetricians that I need say nothing about them. Our reason for mentioning Smellie's name here is that we regard the work of Albinus, Røederer, and Smellie as together forming the first considerable contribution to the anatomy of the uterus in pregnancy in contrast to that of the non-pregnant organ, which had up to that time monopolized attention. This subject was during the eighteenth century systematically worked out, and attained its greatest development in the hands of William Hunter.

By this brief survey of the work of the seventeenth and eighteenth centuries we have sought to bridge over the gap between the "Early Contributions of Anatomy to Obstetrics" and the work of Hunter, which we have dealt with in a former paper¹—his immortal contribution, "The Description of the Gravid Uterus."

Part Second.

REVIEWS.

Pulmonary Consumption: its Etiology, Pathology, and Treatment; with an Analysis of 1000 Cases to Exemplify its Duration and Modes of Arrest. By C. J. B. WILLIAMS, M.D., LL.D., F.R.S., Fellow of the Royal College of Physicians, Physician-Extraordinary to Her Majesty the Queen, Senior Consulting Physician to the Hospital for Consumption and Diseases of the Chest, Brompton, formerly Professor of Medicine and Physician to the Hospital, University College, London; and CHARLES THEODORE WILLIAMS, M.A., M.D. Oxon., Fellow of the Royal College of Physicians, Physician to the Hospital for Consumption and Diseases of the Chest, Brompton. Second Edition, Enlarged and Rewritten by Dr C. THEODORE WILLIAMS. London: Longmans, Green, & Co.: 1887.

THIS work, representing the opinions of one who may justly be regarded as the Nestor among physicians devoted to the elucidation of chest diseases, comes with the weight of a great authority, and any views that are set forth in it will be received with universal respect, even if they do not meet with acquiescence. Some sixteen years have passed between the appearance of the first and second

¹ "Sectional Anatomy of Labour," *Transactions of the Edinburgh Obstetrical Society*, 1886-1887, and *Edinburgh Medical Journal*, 1887.

editions, and the progress made during that lapse of time is strikingly evident from this volume. Much has happened during the period in question, and the most important changes that have taken place are duly set forth by the authors.

It is but natural to turn to the sections on the etiology and pathology of the disease, in order to ascertain the position taken up by the authors on the vexed questions connected therewith, and on doing so we find that they make the bacillus the basis of their pathology,—thus their work is, unless we are mistaken, the first systematic treatise in our language to make such an acknowledgment.

After two lucid chapters on the morbid anatomy and histology of consumption, in which the relation of the micro-organisms to the histological elements is clearly put forth, there are two excellent chapters descriptive of the tubercle bacillus,—the history of its discovery, the means whereby it may be detected, its characters and its relations to the different stages of tuberculosis, are in these chapters clearly stated and fully described.

The position which the authors assume in regard to the whole question of the causation of phthisis is exceedingly judicial. For instance, in beginning to discuss the relation of the bacillus to the tissues, they remark:—"It may be well to bear in mind that though Koch's discovery of the bacillus tuberculosis has introduced a new and essential element, it has not changed the formerly well-recognised products of the disease, but only somewhat modified the relation of each to its causation. Much of the minute anatomy of phthisis is that of the different inflammatory states of the lung, with certain additions of a more or less septic nature; and it is probable that, while much may be due to the irritation set up by the bacillus, more may be caused by constitutional weakness or the lowering influence of malnutrition, both of which tend to render the tissues more prone to the attack of the parasite." And again, in regard to the mode of action of the bacillus, the authors state:—"It is not certain that in all cases of tuberculosis the bacilli themselves are the carriers of the virus in the circulation; and in many instances of well-marked general tubercular infection, all attempts to detect bacilli in the blood have failed, and this, too, when they have been detected abundantly in the sputum. It is quite possible that they produce a chemical poison (ptomaine), which may give rise to the irritative form both of tubercular formation and of secondary absorption, which are characteristic features of the disease. The process of caseation is held by some to be due to such a chemical process; and when we consider the light Brieger's researches have thrown on the nature of 'ptomaines,' we must not deny the possibility of their acting an important part in tuberculosis." And, once more, when reviewing the pathology of the disease, we find the following observation regarding the change of views necessarily caused by the discovery

of the bacillus :—" One great gain has been to establish the unity of phthisis on a firm basis, and to break down all distinctions between phthisis, tubercle, and scrofula, which, judging from the numerous connecting links furnished by clinical experience, we have long held to be artificial."

A long and excellent chapter is devoted to the predisposing causes of consumption. Direct hereditary predisposition, and family predisposition, are held by the authors, from their own experience, to be present respectively in the proportion of about 12 per cent. and 48 per cent. of their cases; and as these belonged to the upper classes exclusively, the authors believe, probably with justice, that such an experience gives a more correct estimate of such predisposition, unaffected by poverty and exposure, and other pernicious influences, than can be obtained in hospital statistics. The mode of transmission, the respective influences of paternal and maternal inheritance, and the other considerations which may be involved in such predisposition, are fully worked out. Surroundings, food, and other diseases receive notice in passing, and the authors hold that alcohol exerts a very powerful influence for evil in this direction. In regard to direct infection of one individual by another, it is stated that although a certain number of cases have been seen by the authors in which this appeared to have been the cause of the disease, yet these have not stood the test of close inquiry. Infection through the milk of a tubercular cow is, however, allowed as a cause of phthisis.

The bulk of the work is devoted to the clinical aspects of consumption; but upon this subject, admirably written as it is, we have not space to enter. The treatment is given in great detail, and can only be described as being all that it ought to be, based upon scientific principles and carried out in a hopeful yet careful spirit. The manner in which drugs are to be administered receives great attention, and the excellent forms of prescriptions cannot fail to be of signal use to all. In the matter of climate we have rarely read more practical teaching than is to be found in this volume, and the table of climates gives at a glance much useful information.

Taken all in all, we know of no work in any language on consumption that can in any way equal this. It is one which the student must read if he wishes to know much of the formidable disease which is such a scourge in our cities, and to which the busy practitioner will turn when he is in difficulty over the treatment of some case. By the wealth of experience and the soundness of views which it contains, it may be said to be the greatest storehouse of facts, as well as the most reliable guide in matters of theory that we possess. As such, it is worthy of the confidence of the entire profession.

Medical Lectures and Essays. By GEORGE JOHNSON, M.D., F.R.C.P., F.R.S., Fellow of King's College, London, Associate Fellow of the College of Physicians of Philadelphia, Emeritus Professor of Clinical Medicine and Consulting Physician to King's College Hospital. London: J. & A. Churchill: 1887.

THIS portly volume contains articles on an immense array of different subjects, almost all of which have already been before the medical profession. They are one and all marked by the strong individuality of the author, and several of them have in the past been the objects of animated yet fruitful controversy. It is a pleasure to have these scattered lectures and papers gathered together in a collected work, but it would have increased the comfort of the reader to a considerable extent had the work been in two volumes instead of one.

Probably the greatest interest for most readers will be centred in the reprint of the author's well-known lectures on Bright's disease, to which are added the more recently published chapters on urinetesting. The author's researches on renal diseases will always be held in high esteem, as throwing one aspect of their pathology into strong relief; and on their account, if for no other reason, this volume will have a high value. It can hardly be said that the new tests which he introduced for albumen and sugar possess any practical advantage over those already in use; but as all investigations such as he conducted have their scientific value, we are glad to have them in the present permanent form.

As a piece of dialectic, the author's Harveian oration is beyond all praise. Few can have forgotten how thoroughly he exposed the claim which Ceradini had the effrontery to assert for Cesalpino as the discoverer of the circulation, and the reprint of this excellent diatribe comes as a fitting epilogue to the contents of the work.

We have had much pleasure in a desultory perusal of the volume, and we feel that the profession owes its author many acknowledgments for able work done in the past and now collected in a form easily accessible to all.

A Handbook of the Theory and Practice of Medicine. By FREDERICK T. ROBERTS, M.D., B.Sc., F.R.C.P., Professor of Materia Medica and Therapeutics, and of Clinical Medicine, at University College; Physician to University College Hospital. Seventh Edition. London: H. K. Lewis: 1888.

WE heartily welcome a new edition of this admirable work, which has undergone a thorough revision, and has been, as in previous editions, brought up to the level of our present knowledge. As we have frequently expressed our high estimate of this valuable treatise, we can only once more wish it very cordially the great success which it undoubtedly merits and will certainly obtain.

Diseases of the Heart and Circulation in Infancy and Adolescence.

By JOHN M. KEATING, M.D., and WILLIAM A. EDWARDS, M.D.
Philadelphia: P. Blakiston, Son, & Co.: 1888.

THIS little work is intended to supply a gap in medical literature, and the authors have conscientiously striven to carry out their intention. They present a careful study of cardiac malformations, and the various diseases of the heart to be found in foetal life as well as in young persons. Almost every type of cardiac and circulatory disease is discussed, and the work may be commended as a painstaking effort to collect and compare data of all kinds bearing upon the subject.

Nerve Prostration and other Functional Disorders of Daily Life. By

ROBSON ROOSE, M.D., F.C.S., Fellow of the Royal College of Physicians of Edinburgh. London: H. K. Lewis: 1888.

In this bulky volume of well-nigh 700 pages the author presents a series of pleasantly-written chapters upon so-called "functional" disorders of the nervous, circulatory, respiratory, and digestive systems. One point which must strike every reader is that too much is made of this term. The author, for example, classes at once epilepsy and diarrhoea amongst functional disorders! It will also be obvious that many parts of the work are old-fashioned, if not antiquated. We may refer to the absence of any reference to modern views regarding peripheral neuritis as the cause of such affections as diphtheritic paralysis, on which a few brief remarks are made, and with respect to which the author states that the cause is either obscure or altogether unknown.

While we are compelled to point out such shortcomings, we heartily recognise the value of the author's observations on nerve prostration. The group of symptoms which go to make up the condition termed neurasthenia is very apt to be slighted by the practitioner, and we have had pleasure in reading the section of the book devoted to this subject, as showing an interest in what is often a terrible malady. The work is written in a very agreeable style, and may be commended as eminently judicious for the most part from a practical point of view, the remarks on treatment being, as a rule, excellent, and the author's teaching on this subject much more modern than his views on pathology.

An Index of Symptoms as an Aid to Diagnosis. By RALPH WINNINGTON LEFTWICH, M.D. London: Smith, Elder, & Co.

THIS book is intended not so much for the student as for the practitioner when in doubt as to the diagnosis of a case with a special symptom, or grouping of symptoms. The author in his own practice felt the want of such a classification as this, in which

by referring to a symptom he might get a list of the various diseases in which it occurs, instead of having to wade through much unnecessary literature in search of the particular symptoms of the case in point. This, however, is not meant as an easy and short road to diagnosis for the use of those who grudge the time and labour involved in a careful study of works on disease; it only professes to limit the extent of reading in a particular case. Such being the avowed intention of the book, it seems likely to prove useful for that purpose to any who may care to use it.

The motto on the title-page is, "*Nihil humani alienum a me puto.*" Perhaps this is an apology to the reader for giving such information as that sweating may be due to exercise or hot weather.

Lectures on the Treatment of the Common Diseases of the Skin. By R. M. SIMON, M.D. Cantab., M.R.C.P. Lond., Senior Assistant-Physician to the General Hospital, Birmingham. Birmingham: Cornish Brothers: 1888.

DR SIMON has republished in this little volume some lectures originally delivered as a post-graduate course. The subjects comprised are pruritus, eczema, psoriasis, acne, scabies, and ringworm, common affections of the skin, and from their very frequency of special interest. Whether, considering the number of large treatises on skin diseases which have recently appeared, and from which most of the information given by the author could be obtained, it was worth while to reprint these lectures, very well suited as they were for their primary object, is an open question. Though somewhat sketchy in style, they will be found to contain many useful hints on treatment. We are not, however, prepared to endorse all Dr Simon says; indeed, on some points our experience is diametrically opposed to his. Those into whose hands the book may fall will find it nevertheless pleasant and not unprofitable reading wherewith to while away half an hour.

Annals of Surgery. September 1888.

THIS month's number opens with a suggestive article from the pen of Prof. Ogston, of Aberdeen, on "Forming a New Acetabulum in Resection of the Hip Joint." In cases of congenital dislocation he recommends sawing off the head, neck, and trochanter of the femur transversely, just above the trochanter minor. A wedge is then chiselled out of the ilium, just above the acetabulum. A bed is thus made, into which the inner edge of the shaft of the femur fits, and if passive movement is kept up, a useful joint results, which is capable of bearing the weight of the body. Prof. Ogston reports three successful cases, in one of which he operated on both hips.

Mr Chavasse, of Birmingham, devotes an unnecessary amount of

trouble to describing an old operation as if it were new, in an article on so-called impermeable urethral stricture. He speaks of *acupressure* forceps, which to us is something new, as also is the description of the bladder as an *organ*. But the most remarkable thing which Mr Chavasse records is that he has found thirty-seven cases of "*impassable*" stricture on which to operate!

The third article is an account by Mr Robson, of Leeds, of an interesting case of *supra-coracoid* dislocation of the shoulder.

Following this is a valuable paper by Dr North, of Brooklyn, on dislocation of the lower jaw, with an account of a case in which the dislocation was reduced after *eighty* days.

The next paper is a short one, but practical. It is by Dr Jenkins, of Henderson, Ky., U.S.A. He suggests that in operating for wiring a fractured patella the skin should be drawn down as far as it will go, and then a transverse incision made. In this way a valvular wound is obtained. Moreover, the rough cuticle over the patella, which often contains various dangerous organisms, is avoided.

The first editorial article is written by Dr James E. Pilcher, on a marvellous conception from "The Fertile Mind" of Dr N. Senn. The suggestion is neither more nor less than that hydrogen gas should be injected into the intestines in cases of gunshot wounds of the abdomen, for the purpose of diagnosing whether there is perforation of the bowels or not. If perforation exists, the gas will escape from the external wound, and can be recognised by lighting it. This latter performance is said to do no harm, but rather good, by cauterizing the wound. The ileo-cæcal valve is no obstacle, for it can be forced by gentle steady pressure. Dr Senn is said to have experimented on himself in the way of inflation. The practical result, however, is likely to be very small, for hydrogen gas is not always at hand in cases of gunshot or other wound of the abdomen.

Mr Keetley winds up the original articles with a short editorial note on Varicocele. Much that he says is excellent, especially in the way of pointing out that so-called radical cures are no cures at all. The article is spoiled, however, by a paragraph in which he puffs a special suspender which he says he introduced nine years ago.

The rest of the journal is occupied with the "Index of Surgical Progress," which contains many interesting and valuable extracts.

Diseases of Man; Data of their Nomenclature; Classification and Genesis. By JOHN W. S. GOULEY, M.D., Surgeon to the Bellevue Hospital. New York: J. H. Vail & Co. London: H. K. Lewis: 1888.

THE larger part of this book is devoted to the nomenclature and classification of disease, while the last section is taken up with a

summary of the views current at present on bacteria, ptomaines, leucomaines, and extractives, with a few remarks on the neoplasms and their classification. What the author chiefly advocates is international uniformity in nomenclature and classification. He points out the confusion arising from the present state of things when many anatomists and medical investigators use words of their own invention which others are at great pains to understand. Moreover, he points out the faults of existing medical language, such as the misapplication of words, the use of improperly constructed words, the use of words which do not convey an exact idea of the object designated, and the use of men's names to designate disease. The author looks forward to the time, and even expects it may be during this generation, when such terms as rheumatism, melancholia, cancer, cholera, etc., shall be used no more for ever, and when the new names shall convey an exact idea of the morbid conditions.

After a section containing synopses of the classification of disease according to Sauvages, Cullen, etc., and the maxims of authorities on the subject, the author gives us his own contribution in the direction of a proper basis of classification and nomenclature. The terms of classification he would borrow from botany, and, basing the classification upon anatomy in its broadest sense, he would arrange diseases into classes, orders, genera, species, and varieties.

As some one has found time to write a book of this kind, it may be that some few may be found who care to read it, and to admire the type of mind which anticipates the millennium in medical nomenclature during the present century.

A Treatise on Dislocations. By LEWIS A. STIMSON, B.A., M.D., Professor of Clinical Surgery in the University of New York, etc. With 163 Illustrations. London: J. & A. Churchill: 1888.

PROFESSOR STIMSON deals first with dislocation in general, and then with the special dislocations. He enters fully into the pathology, etiology, mechanism, diagnosis, complications, and treatment of each injury. Each subject is dealt with in a most thorough and yet interesting manner. We have both the ancient and also the most recent views on every point. In short, the book is well worthy the man who has written it, and will be a most valuable addition to every surgeon's library. As a work of reference it is invaluable, and yet it is not a mere accumulation of dry facts, but a well-written and readable book.

The Sectional Anatomy of Congenital Cæcal Hernia. By E. H. BENNETT, M.D., Professor of Surgery in the University of Dublin; and D. J. CUNNINGHAM, M.D., Professor of Anatomy and Chirurgery in the University of Dublin. London: H. K. Lewis: 1888.

THE surgical anatomy of the various forms of hernia has been investigated so thoroughly that it presents a somewhat barren field for original research. This work, however, is by no means devoid of interest, for it contains, in addition to a careful description of an interesting specimen of hernia, a series of coloured lithographic plates of frozen sections in illustration of the relations of the hernia. By this method we have a view of the parts implicated in their undisturbed position.

This hernia occurred in a powerful male subject. On section it was found to belong to the congenital variety of oblique inguinal hernia. The contents of the sac were the lower part of the ileum with its mesentery, the cæcum, vermiform appendix, and ascending colon. In this case there was a change in the attachment of the root of the mesentery which is worthy of notice. Instead of terminating, as it does normally, at the upper part of the right iliac fossa, it extended downwards into the hernial sac, reaching about an inch below the external abdominal ring. It was obvious that the peritoneum on the posterior wall of the abdomen had been drawn down for a considerable extent, and it was found that this had caused a marked displacement of the right ureter.

The authors found a well-defined layer of non-striped muscular fibres lying behind the hernia sac. These fibres are of special interest in connexion with the observations of Mr Lockwood with regard to the influence of the muscular fibres of the gubernaculum upon the production of hernial sacs.

Mr Lockwood has shown that not only are the processus vaginalis and testicle drawn downwards by the fibres of the gubernaculum, but that some of its fibres extend beyond the testicle to be attached to the peritoneum connected with the lower end of the ileum and the cæcum. An excessive development of these fibres may cause a congenital cæcal hernia.

The plates have been executed with great care, and are well worthy of study.

Anatomische, Physiologische, und Physikalische Daten und Tabellen zum Gebrauche für Mediciner. Von Dr HERMANN VIERORDT, A. O. Professor an der Universität, Tübingen. Jena: Verlag von Gustav Fischer: 1888.

THE value of these "Daten und Tabellen" to scientific medical men, and more especially to those who have to do with the teaching of medical science, cannot be over-estimated. What we may call

our statistical knowledge of anatomy and physiology is now so extensive, and also so precise and minute, that no one can hope to carry more than an infinitesimal part in his memory. At the same time, the application of physics to medicine is becoming so general, and the information required for such application frequently requires to be so precise, that it is now impossible for one, who does not devote his time to the study of physics, to work without the aid of books of reference. Every one knows the trouble and loss of time involved in hunting through text-books for such information; but with these "Tables" on his book-shelf the physician will be spared all this, and will easily and readily procure the data he requires.

Few men are more specially fitted for the production of such a work than Prof. Vierordt, who has devoted a long life to laborious investigation in the domain of medical science, and who is thus admirably fitted to select what is useful to his fellow-workers.

For the satisfactory preparation of such a book the greatest care and discretion are required, and the author has most wisely excluded statistics in regard to matters which have not been thoroughly investigated. A feature which greatly increases the value of the publication is the careful way in which nearly all the data are supported by full references to their original source. In this way the tables are made a most useful work of reference to the literature of statistical researches in medical science.

Taking into consideration the time and labour involved in the production of such a work, it is really wonderful to see how fully up to date most of the information is; and it is with no surprise that we observe in one or two places that the results of more recent researches have been overlooked.

The thanks of the medical profession are due to Prof. Vierordt for this most valuable and useful publication.

Artificial Limbs, Surgical Appliances, etc., with Illustrations of Remarkable Cases, together with a Series of Articles on Psychology.
By JAMES GILLINGHAM, Surgical Mechanist, Chard, Somerset.
Exeter: Printed by Besley & Son: 1888.

THE writer of this pamphlet is evidently an ingenious practical mechanician, and an independent, if not highly trained, thinker on many deep questions.

Most of the artificial limbs he figures for ordinary stumps are much like those of other makers in price as well as in structure, but in his apparatus devised for exceptional cases he appears to have been unusually successful. Among his special inventions is a simple and ingenious device for holding the seam in sewing, by the aid of which a seamstress who has lost a hand may be enabled to continue her work.

Would-be patentees will find food for reflection in the interesting chapter on "The Trials of an Inventor."

Into the psychological part of the work we are not disposed to enter. The writer dives into the deep waters of spiritualism, dreams, visions, and second sight, but we cannot feel that he has brought up from the depths anything to make the subjects clearer than before.

The book is evidently written by "a character." Students of human nature will be interested in it, and surgeons and instrument makers will find many useful hints scattered throughout its pages.

Anæsthetics, their Uses and Administration. By DUDLEY WILMOT BUXTON, M.D., B.S., etc., Administrator of Anæsthetics in University College Hospital, the Hospital for Women, Soho Square, and the Dental Hospital of London. London: H. K. Lewis: 1888.

It cannot always be said that the preface of a book gives a good clue to its general character, but the statement may be truly made of the work before us.

The author says in his preface,—“In this book, which has been written purely from the standpoint of everyday practice, I have attempted to indicate that the matter dealt with has a scientific as well as a work-a-day aspect.” This is what is wanted in a practical guide, and the author must be congratulated on the judicious combination which he has made of the practical and of the theoretical.

Chloroform, ether, and nitrous oxide gas naturally have the most space devoted to them, but the other agents and the various combinations are duly described and contrasted.

All that one would wish to know about the choice of anæsthetics at different ages, in special constitutions, and for particular operations, is clearly and carefully explained; the various modes of administration are described, and their relative value discussed. Possible accidents and emergencies and their proper treatment have a fair share of attention. A chapter on the medico-legal aspects of anæsthetics is complete and thorough, and will be much valued by those in general practice.

In common with many English and American authorities, Mr Buxton prefers ether to chloroform, on the ground that “it (ether) is less dangerous than chloroform, because its undiluted vapour is practically safe; whereas chloroform, unless kept below 4 per cent. of the air breathed, seriously imperils life.” However, as Lister has experimentally shown that by the open handkerchief and towel method this percentage is not exceeded, and since the experience in Edinburgh and other large infirmaries seems fully to confirm Lister’s view, we do not feel that the preference for ether has yet been justified, especially when its advocates allow such a long list

of cases unsuitable for its use. It is probably true that, with the necessary care in administration, either drug is practically safe with the majority of patients; in a very, very few (not to be discovered beforehand) either drug has its dangerous idiosyncrasy; and in certain well-known classes of cases one or other drug is specially indicated, while the other is not. What these latter classes are the readers of this volume will find clearly laid down, and to its careful study we would commend them.

St Thomas's Hospital Reports. New Series. Edited by Dr GULLIVER and Mr CLUTTON. Vol. XVI. London: J. & A. Churchill: 1887.

THE papers in the present volume, exclusive of the reports from the various departments, are fourteen in number. Mr Le Gros Clark continues his Records of Surgical Experience, and deals with injuries of the astragalus, imperforate anus, treatment of stricture by caustic, strangulated hernia, disease of the brain, and wounds by ball and shot. Perhaps the most important parts of his paper are those in which he discusses the injuries of the astragalus and the treatment of strangulated hernia. In regard to the former of these he holds that it is rarely admissible to interfere by operation where the displacement is simple. In compound dislocations or fractures removal of the bone simplifies the case, but in irreducible dislocation it is best to trust to Nature. To secure successful treatment of strangulated hernia he urges early operation and rest to the intestine to enable it to recover its tone. Delay, rough handling, and purgatives he takes to be the chief causes of fatality in hernia operations. With these opinions most practical surgeons will agree. The notes on treatment of stricture consist of the details of two cases in which potassa fusa was applied. The cases of imperforate anus are of much interest, particularly one of a gentleman, aged 37, who had been operated on for the condition in very early infancy.

In addition to the Records, Mr Clark is the author of a paper on the Joints, chiefly in reference to the functional relation of the muscles to them. His observations go to illustrate chiefly how muscles constitute a protection to joints against injury how under favouring circumstances they contribute to the production of dislocations, and help to retain the dislocated bone in its abnormal position, and how the surgeon may avail himself of their assistance in reducing dislocations.

Among other papers of practical interest to the surgeon, we may mention Mr Croft's on Internal Urethrotomy, already noticed in our pages, Mr Clutton's, Mr Ballance's, and Mr Edmunds'.

Mr Clutton, in discussing the treatment of cystic bronchocele, condemns the so-called Morell Mackenzie treatment by injection of the sac with perchloride of iron. He advocates excision of the

diseased portion of the gland, and in cases where this cannot be performed, incision and drainage, without, however, resorting to the method of stitching the wall of the sac to the skin as recommended by Mr Mayo Robson. Mr Ballance has some very interesting remarks on "obsolete" pus, based on a case in which fifty years elapsed between the obsolescence of a lumbar abscess and its renewed activity. For the radical cure of hernia he advocates the use of tendon (reindeer or kangaroo) instead of catgut in stitching up the neck of the sac, because of its superior durability. For the circumcision of adults he describes a dressing of gauze and collodion, which is very similar to the Friar's balsam dressing recommended by Mr A. G. Miller for use after such operations. Mr Edmunds has a paper on a subject which has been exciting considerable attention of late—the Differential Diagnosis of Intra-cranial Affections secondary to Disease of the Ear. Mr Ballance and Mr Edmunds combine in the description of an operation for the diverting of the ureters and removal of the bladder. From experiments on the cadaver they recommend that this should be done in two if not three stages—the ureters being got at through incisions not unlike those for ligature of the common iliacs, and brought outside the abdomen near to the mid-points of the iliac crests—the bladder itself being removed by a later operation through the middle line above the pubis.

Of less practical interest, but still of considerable importance, are Mr Wagstaffe's observations on the twist given to catheters by the urethra, and on the phrenic nerve supply of the anterior scalene muscle.

Of the more purely medical papers may be mentioned Mr F. M. Sandwith's on Typhus and Relapsing Fevers in Egypt, in which he deals with the outbreaks of 1884 and 1886; Dr Percy Smith's cases of Acute Delirious Mania; Mr Sharkey's cases of Hysteria, in which isolation, electricity, and massage were the principal modes of treatment used; and Mr Copeman's on the Blood in Pernicious Anæmia. Mr Copeman investigated five cases, three male and two female. He confirms Dr Bramwell's observations, and in addition has noticed, in specimens of dried blood taken from three of the cases, the formation of crystals of hæmoglobin.

From what we have said it will be seen that all these papers are of much interest, and will repay perusal.

Transactions of the Pathological Society of London, Vol. XXXVIII.
London: Smith, Elder, & Co.

THE work done by this Society, and published in its *Transactions*, still maintains its high standard. It is somewhat invidious to select for special mention individual papers, when all are of such excellent quality; and although a few have specially arrested our attention, it must not be assumed that many others are not equally

worthy of notice. Under the section on the nervous system there is a careful and valuable study of the peripheral neuritis in Raynaud's disease, and two or three other papers on other aspects of peripheral neuritis.

There is a special communication on "Cultivation-experiments with new Growths and normal Tissues, together with Remarks on the Parasitic Theory of Cancer;" this has, if we mistake not, been also published elsewhere. There is a somewhat humorous side to this paper, for the work was undertaken with the idea of determining whether malignant growths were of micro-parasitic origin. A large number of careful experiments were made, with the result that the evidence was entirely negative; but the authors avow their disbelief in the value of their own work, by strongly adhering to the view that malignant growths are due to a micro-parasite! We cannot at present discuss this opinion.

Valuable additions to comparative pathology are made by Mr Bland Sutton, while Mr Roger Williams contributes a paper on "Vegetable Tumours in relation to Bud Formation, with a new Theory of Neoplasia."

General Index to the Transactions of the Pathological Society of London for Vols. XXVI. to XXXVII. London: Smith, Elder, & Co.

THE appearance of this Index will be welcomed by all workers in medicine and pathology. The various papers are indexed under the subject with which they deal, and also under the name of their author, while at the end there is an index to the plates. Much care has evidently been devoted to its preparation.

Transactions of the New York State Medical Association, Vol. III.

Edited for the Association by ALFRED LUDLOW CARROLL, M.D., Concord, N.H. Republican Press Association.

IN this goodly or, to use a word borrowed from our friends on the other side, elegant volume of *Transactions*, there are, apart from the value of the papers, certain points worthy of note and of imitation by the societies on this side of the Atlantic. The first is a discussion on shot-wounds of the intestines, in which a series of five questions are asked, each question being dealt with in a separate paper and by a separate author. The first deals with the diagnostic signs of involvement of the intestine; the second with the first measures of treatment; the third asks the question, "Under what circumstances, and how soon after the injury, should laparotomy be resorted to?" the fourth deals with the technique of the operation; and the fifth with the best methods of after-treatment. A more excellent and thorough system could not be devised for the discussion of a subject every point of which is worthy of the fullest

investigation, and in which it is desirable to have the record of individual experience and observation. Pulmonary tuberculosis and eclampsia are discussed in the same elaborate and detailed manner.

The other point which we think worthy of imitation is the addition of excellent phototypes to some of the obituary notices of eminent members. The *get-up* of the volume is everything that could be wished for by the most fastidious.

Transactions of the Association of American Physicians. First and Second Sessions. Philadelphia: Wm. J. Dornan.

NOWHERE is professional activity greater than in the United States of America, and with increasing activity there is naturally the formation of new channels for its outlet. This, doubtless, has led to the formation of the Association whose *Transactions* are before us. The first volume contains several papers of first-rate importance, the chief of which is an experimental inquiry into mycotic or malignant ulcerative endocarditis, in which the relation of micro-organisms is more clearly defined, and the important place of antecedent injury to valves is demonstrated by a series of experiments. Other papers deal with the tendon-jerk and muscle-jerk in disease; an inquiry into the clinical and pathological correlation of rheumatism, gout, diabetes, and chronic Bright's disease; and equally interesting subjects.

The second volume maintains the level of the first. Some of the more important papers being—an experimental investigation into hæmorrhagic infarction; and atrophy of the gastric tubules in its relation to pernicious anæmia. Among the therapeutic papers Bergeon's method of treating phthisis; the antipyretic treatment of fever; and the use of antipyrine and thallin in the treatment of typhoid fever, occupy a prominent place.

Altogether the work recorded in these volumes is such as to make us wish this new Association a long life full of equally valuable fruit.

Part Third.

MEETINGS OF SOCIETIES.

CARLISLE MEDICAL SOCIETY.

THE last meeting of the Session 1887-88 was held 12th April. The following were elected office-bearers for the ensuing Session:—*President*, J. A. Macdougall, M.D., F.R.C.S.E.; *Vice-President*, S. Rutherford Macphail, M.D.; *Hon. Sec.*, Norman Walker, M.D., Dalston, Carlisle.

Dr Devlin read notes of an UNUSUAL MIDWIFERY CASE.

Dr Sprague read a short paper on SPINAL CARIES, WITH NOTES OF CASES.

Dr Macdougall read a paper on PERFORATION OF THE VERMIFORM APPENDIX IN ITS RELATION TO PENTYPLHITIS, and an interesting discussion followed.

Dr Sprague showed specimens—CANCER OF ŒSOPHAGUS; STOMACH from a case of nitric acid poisoning; FRACTURE OF SPINE; SCROFULOUS KIDNEY.

Part Fourth.

PERISCOPE.

MONTHLY REPORT ON THE PROGRESS OF THERAPEUTICS.

By WILLIAM CRAIG, M.D., F.R.S.E., Lecturer on Materia Medica, Edinburgh School of Medicine, etc., etc.

QUINOLINE—A NEW ANTISEPTIC.—This substance (C_9H_9N) is obtained synthetically from aniline, nitro-benzoin, glycerin, and sulphuric acid. It is very soluble in alcohol, in ether, in chloroform, and in benzine, but it is very slightly soluble in water. According to Dormat (*Journal de Médecine de Paris*, June 10, 1888), it possesses antiseptic powers even when in aqueous solution. In a .02 per cent. solution it prevents the putrefaction of urine, while suppressing the coagulability of the blood and diminishing that of albumen. In a .04 per cent. solution it prevents the putrefaction of the blood. The author recommends its employment as a gargle, which he states that he has used with considerable success in diphtheria. One part may be dissolved in 500 parts of peppermint-water, to which 50 parts of alcohol are added. Quinoline forms salts of which the salicylate and tartrate may be employed for surgical purposes, on account of their high solubility in water. One part of the tartrate of quinoline dissolved in 150 parts of water is said to form an excellent injection for the treatment of gonorrhœa.—*Therapeutic Gazette*, August 1888.

PARENCHYMATOUS INJECTION OF STRYCHNINE FOR THE REDUCTION OF ENLARGED SPLEEN.—H. Jacaertini has employed the sulphate of strychnine in one-half to three-fourths per cent. solution, of which 20 drops were daily injected into the spleen to reduce the enlargement produced by malaria. According to the author, whose results are reported in the *Deutsche Medizinische Zeitung* for May 7, 1888, strychnine is to be preferred to ergotin, since the muscular contractions produced by it only gradually occur, while ergotin acts more suddenly and energetically, and therefore is attended with more danger to the integrity of the organ. The author groups the results of his experiments in the following sen-

tences:—1. Parenchymatous injections of strychnine into the spleen leads to the reduction of the volume of the organ when this enlargement is due to chronic malaria. 2. In old chronic cases no increase of temperature is produced. 3. The general condition of the patient becomes gradually improved. 4. The parenchymatous injection of strychnine is free from the inconvenient results which follow the similar employment of other substances.—*Therapeutic Gazette*, July 1888.

HELLEBOREINE AS A LOCAL ANÆSTHETIC.—Venturini and Gaspairini (*Bulletin Général de Thérapeutique*, June 15, 1888) state that helleboreine is an anæsthetic, and more valuable than cocaine in ocular therapeutics. Their conclusions are that three or four drops of a solution of helleboreine, each drop containing about the one-hundredth of a grain, instilled into the conjunctival sac, produces complete corneal anæsthesia, without any irritation of the conjunctiva or cornea. This anæsthetic effect lasts half an hour, or a little longer, but may be prolonged for twenty-four hours or more by combining it with small amounts of erythrophlæine, but when combined with cocaine the anæsthetic action disappears so rapidly as to not admit of the performance of any operation whatever on the eye. The anæsthetic effect produced by helleboreine leads to no variation in the intra-ocular pressure. It also produces local anæsthetic effects wherever injected subcutaneously; but as it has a very powerful action on the heart, this mode of application should be either made with great care, or, better, not at all.—*Therapeutic Gazette*, August 1888.

PARALDEHYDE IN OBSTINATE VOMITING.—In the *Albany Medical Annals* for June 1888, Dr U. B. la Moure states that, having been in the practice of prescribing paraldehyde in the treatment of insomnia in alcoholism, he has noticed that, even although the first dose was sometimes rejected from the stomach, when the patient was affected with gastritis and obstinate vomiting, the second dose, given usually in one or two hours, was almost invariably retained, even though there had been absolute inability for the retention of food in any form previous to treatment. This experience suggested to him that paraldehyde might be used in vomiting from other causes, and he has consequently employed it in the vomiting from ovarian irritability and the vomiting of pregnancy, and in the nausea of migraine, with, as he states, the most gratifying results. His mode of administration consisted of forty drops of paraldehyde to an ounce of simple elixir, of which one teaspoonful may be given in water, repeated in half an hour if required. This small dose is not hypnotic, acts as a sedative upon the mucous membrane of the stomach, and has a tranquillizing effect on the whole system. The only objection to its use is the disagreeable odour of the drug.—*Therapeutic Gazette*, August 1888.

HYDRASTIS CANADENSIS.—From a large number of clinical

observations and experiments made on animals with the root of *hydrastis canadensis*, Givopiszew arrives at the following conclusions (*Bull. Gén. de Thérap.*, No. 8, 1888):—1. An aqueous extract, taken even in large quantity, produces no toxic effects in warm-blooded animals. 2. It produces always a reduction of the blood-pressure without any preliminary increase. 3. It always produces in rabbits contractions of the uterine body and horns. The author further noted that under the influence of a watery extract of *hydrastis canadensis* the uterine contractions are most intense in cases of advanced pregnancy or soon after delivery, while the most feeble contractions occur in a virgin uterus after its use. 4. Large quantities of this extract may produce premature delivery in the second half of pregnancy. As the result of his clinical experiments, the author gives the following *résumé*:—1. *Hydrastis canadensis* is an excellent measure for combating uterine hæmorrhages due to inflammations or displacements of this organ, as well as the hæmorrhages occurring at the menopause and in cases of menorrhagia. 2. The uterine contractions produced by *hydrastis canadensis* are less intense than those produced by ergot. 3. Its employment produces no disturbance in the organism, never even when taken for a long time producing any gastro-intestinal troubles, and even seeming to ameliorate dyspepsia when present.—*Therapeutic Gazette*, July 1888.

ANTIPIRYN IN SUPPRESSING THE MILK-SECRETION.—Dr Saluni, writing to the *Bulletin Général de Thérapeutique* for 30th June 1888, states that, being called to a young primipara of robust constitution who, from neglecting the symptoms of trouble in the breast, was suffering so severely from fissures of the nipples as to prevent nursing, he employed a large number of different methods for arresting the secretion of the milk, but without avail. He finally administered antipyrin in a daily dose of eight grains, given at three different intervals. The secretion diminished on the first day, and disappeared on the third, not to return.—*Therapeutic Gazette*, September 1888.

IODIDE OF POTASSIUM IN CARDIAC DYSPNŒA.—M. Sée (*Journal de Médecine et de Chirurgie*, July 1888) has for a long time employed iodide of potassium not only in asthmatic dyspnœa, but in dyspnœa of cardiac origin; and he considers it as an excellent cardiac remedy, whose only disadvantage is that it is not diuretic, a defect, however, which may be remedied by adding to it the use of milk. Iodide of potassium acts evidently on the respiratory mucous membrane, and on the nervous apparatus of the respiratory system. In case of a valvular lesion its effects are less marked than when there is a lesion in the cardiac tissue itself. Nevertheless, it generally suffices to cause the disappearance, for a time at least, of the dyspnœic element. Before, however, pronouncing the existence of asthmatic or cardiac dyspnœa, the following fact must be noticed. In a large number of asthmatic individuals a very slight but

evident systolic murmur may be heard at the base, or, more rarely, at the apex, and may occasion the dread of a valvular lesion. This murmur, which appears to reside in the valves of the right heart, will disappear entirely in a few days under the use of iodide of potassium. The dose, which is to be employed daily, is about 20 grains, which may be gradually increased to 30 or 45 grains. The inconveniences of the prolonged action of iodide consists in the production of congestion of the respiratory passages, and in tuberculosis may even lead to a hæmorrhage. It should, therefore, be given very carefully where tuberculosis is suspected. Iodide of sodium is much less stable than the iodide of potassium, and contains less iodine. Dr Sée also calls attention to the fact, that in many cases troubles which have been attributed to the use of iodide of potassium are occasionally due to the fact that iodide of potassium is often contaminated with iodates, which are extremely poisonous. —*Therapeutic Gazette*, September 1888.

MEDICAL PERISCOPE.

By FRANCIS TROUP, M.D.

Berlin. Klin. Wochensh., No. 32.—Prof. Bernhardt contributes an instructive case illustrating the innervation of the bladder and rectum and sexual organs in man.

A mason fell two stories upon his buttocks. The day after the accident he was unable to urinate, and was catheterized; dribbling of urine did not take place, but the bowels evacuated themselves involuntarily and unconsciously to the patient.

He was not feverish, was perfectly conscious, and his complaint was chiefly of inability to evacuate the bladder and to retain his stools; he did not feel when they passed the anus, although he felt the premonitory sensations in the abdomen which announce that such an event is about to take place. He could stand unsupported, although feeling pain in the back about the region of the seventh to twelfth dorsal vertebræ. Lying in bed the patient could move both lower extremities perfectly in all directions, and without pain; the knee-phenomenon was present on both sides, and not exaggerated; there was no foot-phenomenon. The plantar reflexes were also present: touch, needle pricks, temperature differences, and passive alterations of position of the limbs, were normally and promptly felt.

On the other hand, there was absolute anæsthesia, not only for touch but also for temperature, in the anal cleft, anus, and nates on both sides, from 2 to 3 cm. from the cleft.

This anæsthesia extended downwards, over the buttocks and the posterior surface of both thighs, to about a handbreadth above the popliteal space, and was exactly limited by a line equally dividing the thighs from above downwards.

The perineum was also anæsthetic, the scrotum, and the penis from glans to root; but the suprapubic region and the inner sur-

face of the skin of thigh were normally sensitive, as also the whole sacral region and the abdominal and inguinal skin.

A month afterwards patient could stand and walk about. The anæsthesia remained as before; the testicles could feel when pressed, but the scrotum did not feel even deep pricks of a needle. Sometimes also the urine dribbled in spite of patient's efforts to hold it; he could not yet retain his stool. He was not impotent; coitus took place in a normal way, and with normal voluptuous feeling. Some months afterwards patient had erections, immissio penis and ejaculatio seminis took place normally, but the semen remained in the urethra, and flowed away post cohabitationem, slowly and in drops.

An electrode applied to perineum or inserted into rectum or urethra caused no uneasiness to patient, and the examining finger could feel no contractions of levator ani or perineal muscles.

The treatment, partly galvanic, partly faradic, seemed by-and-by to do some good; at least the stool could be retained, when necessity to go to the closet was felt, until he could reach that locality, and the urine could be passed in a small stream.

It seems clear in this case that the nerves, nerve-roots, and nuclear origins of the plexus lumbaris and ischiaticus were uninjured. It is interesting to notice the sharp division of the innervation of neighbouring parts which the sensitiveness of the testicles themselves and the anæsthesia of the scrotal integument reveal. The nervus spermaticus externus, which supplies testicles and cremaster, belongs to the lumbar plexus, as also the nervous twigs supplying the anterior half of the scrotum, which soon reacted to electrical stimuli, whilst the posterior scrotal integument and that of the perineal region continue uninfluenced by such stimuli; these parts receive their nervous supply from the plexus pudendalis. The intactness of the lumbar plexus also explains the retained sensibility of the inguinal regions, mons pubis, and skin of the upper thigh in the region of the fovea ovalis supplied by the ilio-hypogastric, ilio-inguinal, and genito-crural nerves.

It is not easy to explain how a fall on the buttock could produce the above-described phenomena; fracture of vertebral arch or sacrum seemed excluded by the negative results of digital examination, and the fact that eight days after the accident patient could stand alone. Possibly the concussion itself, and accompanied by some bleeding, had led to compression or contusion of the sub-lumbar division of the cord; or, again, a crushing of the nerves belonging to the pudendal plexus might have been brought about by infraction of the os sacrum.

The paralysis of the bladder and rectum, as well as of the muscles which contract and empty the urethra, and the anæsthesia of the mucous and dermal territories above described, leave no doubt that there was essentially either a central or peripheral paralysis of the nervous hæmorrhoidalis medius for the rectum, the fundus, the sphincter, and neck of the bladder and

levator ani, further of the n. hæmorrhoidalis inferior for the sphincter ani externus and levator ani, and the pudendal nerve for the perineum and perineal skin, for the bulbo-cavernous muscle, and also of the n. dorsalis penis, the posterior scrotal nerves, and the coccygeal nerve.

It is instructive to know the fact, that beside an almost perfect paralysis of bladder and rectum, the anatomical and physiologically neighbouring territory of the sexual functions in man may be only slightly encroached upon.

The nervi-erigentes, whose excitement relaxes the smooth muscular fibrils with which the septa of the corpora cavernosa penis are furnished, and so brings about an increased blood supply, seem in this case to have been unaffected.

The potentia cœundi and the feeling accompanying the act were present when the bladder and rectal paralysis and the penile anæsthesia still existed; in contrast to this libido and potentia, however, the forces which ejaculate the semen were disabled, possibly from paralysis of the bulbo-cavernous muscle.

Ibidem, No. 33.—Dr Hajek contributes a paper on the bacteria of acute and chronic coryza as well as ozæna. In seven out of ten cases of the latter he found the capsulated bacterium of Friedländer, and beside numerous other species, the strepto- and staphylococcus pyogenes, a bacillus fluorescens liquefaciens (to which, probably, the peculiar colour of the nasal discharge in cases of ozæna is due), and a kind of bacillus appearing as short rods hanging together in couples or in chains; this bacillus decomposes organic substances with evolution of an abominable odour, and owing to this latter quality, Hajek has named it bacillus fœtidus ozænæ. This bacillus is easily grown on the usual media, and is pathogenic for small animals, such as mice and rabbits, which latter suffer from intense inflammation ending in suppuration and necrosis at the injected spot. But it seems to cause no inconvenience if merely spread on the unwounded skin or nasal mucous membrane. Hajek is of opinion, however, that ozæna is not primarily of bacterial origin; that the bacteria merely cause secondary vegetations in the pathological secretion, and ultimately its peculiar fœtor and colour.

Ibidem, No. 32.—Dr Bartens relates a case of severe burn of the feet and lower part of both legs in which the suppurating surfaces were ultimately healed by the transplantation of skin taken from a person twenty minutes after death. The pieces of skin were put into lukewarm water in which a little salt was dissolved; they were then cleared of the adherent fat, and cut into strips about 1 to 2 cm. in length, and laid on the suppurating surface, which was of course cleaned thoroughly before application. The whole operation lasted an hour and a half from the death of the patient who furnished the skin. Six days afterwards it was found

that twelve of the fourteen fragments used had lived and were adherent, and the burn rapidly cicatrized, and the resulting cicatrix was perfectly extensible, and caused no embarrassment in motion of the feet.

PERISCOPE OF SYPHILOLOGY.

By FRANCIS CADELL, F.R.C.S. Ed.

GENITO-URINARY REFLEXES.—In the *American Practitioner and News*, May 26, 1888, Dr J. G. Carpenter illustrates this subject by the following cases:—

PART I.—*Long and Contracted Prepuces a Plea for Circumcision.*

Case 1.—A negro boy, aged 16, had a very long, contracted, and adherent prepuce, was subject to nocturnal enuresis from infancy, the last urine passed being retained within the foreskin. Since circumcision a period of nine years has elapsed, with no repetition of the habit.

Case 2.—H. H., aged 4 months, has a long, narrow, adherent foreskin; difficulty in urinating; frequent erections, and pain in penis. Pain is so exquisite that no diaper can be pinned over penis; when he urinates he cries and suffers, and the muscles of lower limbs are alternately in clonic and tonic spasms. Reflex disturbance removed by circumcision.

Case 3.—J. C., aged 18 months, has phimosis with adherent foreskin. Similar reflex symptoms. Cured by circumcision.

Case 4.—Boy, aged 10 years; healthy parents. He, however, has been feeble and emaciated, with capricious appetite. Other children robust. Has mental obtuseness, with bad memory. Sleep is disturbed; nocturnal enuresis and dribbling of urine two prominent symptoms. Has a long, narrow, and adherent foreskin. Cured by circumcision. In three months is in perfect health, and is now considered by his teacher and family as a bright lad, and is one of the best scholars in the school.

Trousseau, Black, Waterman, and Otis have reported cases of incontinence due alone to phimosis. Brown-Sequard's case of apparent cerebral *ramollissement* is unique, and beautifully illustrates the subject of "genito-urinary reflexes." "A long and contracted prepuce prevents or destroys the voluptuous feelings of sexual intercourse, . . . and prevents intromission and the emission of semen" (Hammond). "In an experience of several years in attendance at Mt. Sinai Hospital I have not met with a case of epithelioma of the penis in an individual upon whom in early life circumcision had been performed" (Wyeth). Circumcision should be done in infancy, because the Scriptures teach it, and as a hygienic and prophylactic measure. It is indicated (1) for cleanliness; (2) to prevent balano-posthitis and the adhesions of the glans to prepuce, nocturnal enuresis, and dribbling of urine, the formation of concretions of smegma preputii; (3) as a prophylactic against gonorrhœa, syphilis, cancer, and warts; (4) phimosis causes several drops

of the last urine that passed to be retained within the foreskin, which decomposes and produces irritation of the glans and prepuce; this irritation becomes so great that boys have frequent erections, titillate the genitals, and the habit of masturbation is acquired, *volens volens*; (5) as a preventative of infantile paralysis, epilepsy, reflex mental symptoms, and hyperæsthesia of the glans; (6) to remove a barrier to intromission, sterility, and the perfect enjoyment of the sexual act; (7) a long narrow foreskin is always a great inconvenience, and an uncomely sight to the possessor as well as the beholder. There is no greater plague than this. It mortifies and embarrasses the victim beyond description; it creates irritability of mind, and interferes with the nutrition of the glans, retarding its growth.

PART II.—*Urethral Stricture occurring from Stricture of Large Calibre.*

Genito-urinary reflexes are illustrated by reports of two cases.

Case 1.—R. C., aged 21, had gonorrhœa in 1885; treated himself by using strong solutions of zinc and copper. By this means he was not cured, but succeeded in producing three strictures of large calibre. Meatus was 30 millimeters; stricture No. 1 was 1 inch from meatus, and tortuous; No. 2 was located $1\frac{1}{2}$ inches, and No. 3 was $4\frac{1}{2}$ inches from meatus. The normal calibre of the urethra was 40 F. The reflexes of this case were nephralgia, neuralgia of testicles and head of penis, frequent and painful urination, pain and tension in the back of the neck, and irritability of mind. The use of stimulants, overwork, and the sexual act aggravated the case. After division of the stricture, all the reflex symptoms rapidly subsided, and restoration to health was soon accomplished.

Case 2.—J. B., aged 25, had gonorrhœa in the year 1884. He treated himself with strong solutions of copper, the case ending in a gleet with four strictures. The reflexes were pains in the lumbar region, testicles, and head of penis; erections and micturition painful; sexual desire lessened; the act painful; overwork, or use of stimulants, and sudden change of weather, aggravated the above symptoms.

IMPORTANCE AND ERADICATION OF SYPHILIS.—Dr H. R. Storer, in a paper read before the American Medical Association in 1878, came to the following conclusions, which have not been challenged:—1. Syphilis, like other toxæmias, is more prone to become constitutional in a strumous than in a perfectly healthy subject. 2. Struma, the result of syphilis, especially if from inheritance, though confessedly not uncommon, is comparatively seldom recognised as such during life, and still more unfrequently does it receive appropriate treatment. 3. Syphilitic struma, personal or by heredity, is in no sense self-limited. 4. The predisposition to syphilis by heredity (a very different thing from its inheritance) is both of itself, and as affected by strumous and other antecedent dyscrasiæ, much more frequent and intense than is generally supposed. 5.

The transference of primary syphilis being sometimes made by perfectly healthy women who are themselves entirely free from specific disease,—this is an element not to be overlooked in the discussion of syphilitic struma, as it bears vitally upon the questions, who are most prone to receive infection, how the virus is propagated, and in what way to attempt to restrain the spread of venereal disease. There is reason to believe that the strumous diathesis renders the development of syphilitic phthisis, through direct or inherited infection, more likely to be determined. There is equal reason for the supposition that the occurrence of this latter will intensify the strumous taint; or, at least, evidence is as yet lacking that such is not the case. In whatever direction this may at last be determined, he believes that the following deductions will still prove true, namely:—1. That the more completely we prevent (by wise sanitation), control (by intelligent supervision), and perhaps cure (in certain cases by specific treatment), phthisis and other forms of strumous disease, to such an extent do we limit the probable infectious propagation and intensity of syphilis. 2. Similarly, the more actively we endeavour, by public and private measures other than those now indicated, to absolutely eradicate syphilis from any community, to such an extent do we limit the occurrence, personal and by inheritance, of the various forms of strumous disease. 3. *A fortiori*, and even to a greater extent than has as yet been or can be effected by governmental or private attempts to control venereal disease by examining for or treating its primary lesions, by thus removing from our midst a large moiety of the material upon which the disease has thus far subsisted, we may hope eventually to get it under control.—*The Journal of the American Medical Association*, February 25, 1888.

Part Fifth.

MEDICAL NEWS.

HONOUR TO AN EDINBURGH GRADUATE.—We are informed that a young Edinburgh graduate, Dr Arwid Kellgren, was recently summoned from London to travel with and treat the Empress of Austria. Dr Kellgren is a well-known exponent of Ling's system of manual treatment.

ROYAL COLLEGES OF PHYSICIANS AND SURGEONS OF EDINBURGH, AND FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—The following candidates passed their final examination for the triple qualification in Medicine and Surgery at the sittings held in October 1888, and were admitted L.R.C.P. & S. Ed., and L.F.P.S. Glasg.:—Mrs Caroline Keith, Waldhof; Miss Florence Sorby, Sheffield; George Edward Deaner, Lincolnshire; Frederick Fairburn Armytags, Huddersfield; Miss Mary Susanna Acworth, London; Robert Boyle, Glasgow; Richard Eden Walker, Canada; William Hamilton Merritt, Canada; Thomas Warren, Armagh; Henry Soltan, Exmouth; Iehangir Jumshedji Cursetji, Bombay; William Mussen, County Down; Richard Henry Barber, Worcester; Edmond William St Vincent Ryan, Cork; John Adams, Melbourne; Hugh William Bailie, County Down; Robert George Reid, Victoria; George Ogle Moore, Australia; Robert Mills Simpson, Ontario; Charles Edward Salmon, Edinburgh; Charles M'Leod, Canada; Frederick

Thomas Anderson, India; Arthur Septimus Thompson, South Shields; Frederick Naylor Stewart, Newport, Fife; John Samuel Ledgerwood, County Down; John Stewart Merrillees, Melbourne; Richard Patrick Bryne, Cork; John Stewart Boyd, Renfrewshire; William Henry Webster, York; Donald M'Lachlan, Tobermory; Roger Barnard Buckle, Cork; James Alexander Greig, Edinburgh; John Ferris, Devonshire; William Williams, Anglesea; Francis Malcolm Bovill, London; Edwin Andrew Cuthbert Hindmarsh, Calcutta; George Stevens Pope, Madras; Alfred Moxon, Rugby; Miss Elizabeth Simpson Mitchell, Canada; Miss Nettie Ogilvie, Glasgow; William Armstrong, Manchester; Charles James Milligan, Belfast; Ernest Gerald Robert Whitcombe, India; Percy Walker Thompson, Toronto; Robert Rudland, Coventry; Edmund Lerede Chalke, Madras; John Henry Brice, Warwickshire; Harold William Kingcombe Read, Devonshire; William Arnold Passe, Ceylon; Joseph Henry Wilson, County Cork; Robert David Prichard, Carnarvonshire; Edward Orr Harrison, Forfarshire; John Michael O'Dwyer, Cork; Charles Lawrence Howe, Lancaster; Luther Watson, Huddersfield; Gwilym Evans, South Wales; John Henry Carson, County Down; James William Harbinson, Belfast; John Robert Mason, Lancashire; William Thomas Blackledge, Lancashire; Charles William O'Connor, County Limerick; Francis Murphy, Cork; John Hurd Gordon, Birmingham; George Cormick, Tabriz, Persia.

WE have received from Messrs Burroughs, Wellcome, & Co. a sample of their Warburg's Tincture Tabloids, and are glad to be able to report very favourably upon them. Warburg's Tincture is not so well known in this country as it is in Southern India and in Africa. This is a pity, for it is probably the most powerful diaphoretic we possess. It was first introduced into India by General Sir Mark Cubbon; and Surgeon-General W. Campbell Maclean, late Professor of Medicine in the Army Medical School of Netley, very strongly recommended it in all cases of malarial fever. It is probably due to the fact that the ingredients of this tincture have been supposed to be secret that its use has been so limited in this country; but the formula was published as long ago as 1875 in both the *Lancet* and *Medical Times and Gazette*, and in Maclean's *Diseases of Tropical Climates* the formula has again been made known. Quinine forms the active ingredient, but the advantage of this preparation is that less quinine is needed to reduce temperature, or to cut short a malarial fever, than in any other method of administration. In adynamic cases it should be given with care, lest its action should be too depressing. We may mention that both Dr W. S. Playfair and Dr Broadbent have both recommended the use of the tincture. Up to the present time three objections have been raised to the employment of this preparation. It is bulky, disagreeable to take, and the first dose is often vomited as soon as swallowed. All these drawbacks are avoided by the use of the tabloids as now prepared. We have tried the tabloids in various cases, and can confidently recommend them to the favourable notice of the profession. It should be remembered that for two or three hours after the full dose of the tabloids has been taken the patient should receive as little fluid as possible, and that fluid should be warm. It would be perhaps advisable for this to be stated on the label.

SOZOIODOL.—We have received from Mr Boehm, London, specimens of various salts of soziodol.

This substance is a combination of iodine, carbolic acid, and

sulphur—three powerful antiseptics—and has recently been brought before the profession as a new antiseptic by H. Trommsdorff, manufacturing chemist, Erfurt. It is used for the same diseases, and in much the same way, as iodoform, but being odourless, it is in that respect much superior to iodoform.

Sozoiodol is itself not very soluble, and as it is capable of forming salts, which are much more soluble, and to a certain extent possess the properties of the bases, it is recommended to be used in the form of a salt of sozoiodol. We have received specimens of the following salts:—Sodium, potassium, mercury, and zinc. We commend these salts to the favourable notice of those requiring such antiseptics.

THE IMAGINATION AND HEALTH.—A New Orleans journal reports that a Dr Durand, of that town, wishing to test the effects of the imagination on health and disease, experimented on a hundred patients, to whom he gave a dose of sweetened water. Fifteen minutes after he entered, apparently in great excitement, and announced that he had made a mistake, having administered a powerful emetic, and he directed that preparations should be made accordingly. Eighty out of the hundred patients were thoroughly ill, and exhibited the usual results of an emetic. The remaining twenty were unaffected. It is added that with few exceptions the eighty who became ill were men, while those who did not suffer were women.—*Times*, Oct. 13, 1888.

DEUTSCH-MEDICINISCHE-SCHRIFT-SUCHT; OR, THE GERMAN MEDICAL-JOURNAL HABIT.

DR JOHN S. HAWLEY closed an address on the above subject before the Hospital Graduates' Club with the following "Song," which we copy from the *Medical Analectic*:—

If we write so that nouns with their verbs don't agree,
That's German, you know, quite German, you know.
If our meaning obscure and involved seems to be,
It's German, not English, you know.
But that kind of writing you read in Berlin,
In Heidelberg, Wien, where we've frequently been,
Don't mind how you end, if you only begin,—
Is German, quite German, you know.
O the queer things we do, and the queer things we see
Are German, you know, all German, you know.
No man in this wide world a surgeon can be
Till he's German, all German, you know.
We spend all our money to emulate Koch,
He's German, you know, born a German, you know.
We cultivate germs tho' our raiment we "hock"
With our uncle, who's German, you know.
We bully our confrères with Volkmann and Braun,
With Virchow and Schroeder their arguments down,
And we knock them all out with Esmarch's renown,
They're Germans, native Germans, you know.
O the queer names we hear, and the queer names we quote,
Are German, you know, all German, you know,
We speak them, tho' each gives us a pain in the throat,
For they're German, true German, you know.

We take out the stomach and resect the gut,
That's German, you know, quite German, you know.
The leaves of the journals in public we cut,
When they're German, true German, you know.
Our talk has a bacteriological drift,
We pay "twenty marks" for a pipe, for a gift,
And we quote from the *Berliner klin. Wochenschrift*,
Which is published in German, you know.
O the marvellous statements that come from afar,
Are German, you know, all German, you know,
But of course it's all right if it's German — *nicht wahr?*
That's the German for "aint it?" you know.

We think it improper to poultice a boil,
No German you know, would do so, you know,
And we make salad dressing with carbolized oil,
That's the custom with Germans, you know.
With carbolic inhalers we muzzle our jaws,
We wear underclothes of iodoform gauze,
We ignore the effect, and talk big about cause,
Which the Germans do always, you know.
O the queer things we do and the queer ways we live,
Are German, you know, all German, you know,
Of squaring the circle the method we'll give,
Or some German will give it, you know.

We consider a coccus the cause of a gleet,
That's German, you know, quite German, you know,
We dress a cut finger in a haystack of peat,
That's German, true German, you know.
We put in a gum larynx and a celluloid tongue,
We exsect the spleen, and we resect the lung,
We save at the spigot, and leak at the bung,—
O we're German, we're German, you know.
But the queer way we feel when we count up the slain,
Is not German, you know, no, not German, you know,
And we've not enough nerve yet to exsect the brain,
As the Germans will soon do, you know.

We write in the journals a great deal of rot,
As do Germans, you know, tho' they're Germans, you know,
And we seek a small pin in a ten-acre lot,
For the Germans can find one, you know.
We discard the choice meat and chew on the bone,
We refuse the good bread and grasp at a stone,
We hoard oyster shells and the pearls leave alone,
That's German, true German, you know.
O the queer things we do, and the queer things we write,
Are German, you know, all German, you know.
We will swear that the ace of the spade suit is white,
If some German but says so, you know.

On sterilized pap our young infants we feed,
That's German, you know, quite German, you know,
And we hope by such means to improve on the breed,
For the Germans advise it, you know.
In training a puppy or raising a foal,
In the search for an office, or the seat of the soul,
Or how to fit a square stick to a circular hole,
We get points from the Germans, you know.
O the queer tricks we play with our young babies' milk
Are German, you know, all German, you know.

Of sow's ears we make purses of superfine silk
By a process that's German, you know.

We pour down the beer as tho' filling a tank,
That's German, you know, true German, you know.

And we eat Sweitzer Kase and Limburger rank,
That's German cheese with the gangrene, you know.

Frankfurters we love, and sauer kraut, too,

And we make no mistake when the spring Bock we brew,
But we bite off more science than we ever can chew

When we follow the Germans, you know.

O for the queer things we eat, and the good things we drink,

Thank the Germans, you know, bless the Germans, you know,

But we ball up our science, and our good sense we kink,

When we try German methods, you know.

—*Boston Medical and Surgical Journal.*

[PARAGRAPH ADVERTISEMENT.]

ROYAL COLLEGE OF SURGEONS, EDINBURGH.

AT the Annual Meeting of this College, held on 17th October, the following OFFICE-BEARERS were elected for the ensuing year :—

President.

JOSEPH BELL.

Vice-President.

DOUGLAS ARGYLL ROBERTSON, M.D.

Interim Secretary and Treasurer.

JAMES ROBERTSON, Solicitor.

Librarian.

CHARLES WATSON MACGILLIVRAY, M.D.

President's Council.

JAMES DONALDSON GILLESPIE, M.D.

JOHN SMITH, M.D., LL.D.

HENRY DUNCAN LITTLEJOHN, M.D.

JOHN DUNCAN, M.D., LL.D.

FRANCIS BRODIE IMLACH.

THOMAS ANNANDALE.

Ex Officio,—PATRICK H. WATSON, M.D., LL.D., D. ARGYLL ROBERTSON, M.D.

Representative in General Medical Council.

PATRICK HERON WATSON, M.D., LL.D.

Examiners.

JAMES D. GILLESPIE, M.D.

ALEXANDER G. MILLER.

HENRY D. LITTLEJOHN, M.D.

PETER H. MACLAREN, M.D.

PATRICK H. WATSON, M.D., LL.D.

JOHNSON SYMINGTON, M.D.

DAVID WILSON, M.D.

FRANCIS CADELL.

JOHN SMITH, M.D., LL.D.

JAMES DUNSMURE, M.D.

JOSEPH BELL.

WILLIAM CRAIG, M.D.

JOHN DUNCAN, M.D., LL.D.

CHARLES E. UNDERHILL, M.B.

ROBERT J. BLAIR CUNYNGHAME, M.D.

In Anatomy.

JOHN MACDONALD BROWN, M.B.

In Surgery.

CHARLES W. MACGILLIVRAY, M.D.

Dental Examiners.

HENRY D. LITTLEJOHN, M.D.

JOHN SMITH, M.D., LL.D.

PATRICK H. WATSON, M.D., LL.D.

ANDREW WILSON, L.D.S.

DAVID WILSON, M.D.

GEORGE W. WATSON, L.D.S.

Assessors.

ARCHIBALD INGLIS, M.D.

FRANCIS B. IMLACH.

SIR WILLIAM TURNER.

D. ARGYLL ROBERTSON, M.D.

Conserbator of Museum.

CHARLES W. CATHCART, M.B.

Clerk.

JAMES ROBERTSON, *Solicitor.*

Officer.

JAMES HAMILTON.

Assistant to Conserbator.

GEORGE REID.

Part First.

ORIGINAL COMMUNICATIONS.

I. — ABSTRACT OF INTRODUCTORY LECTURE TO A COURSE OF LECTURES ON SURGERY IN THE EDINBURGH SCHOOL OF MEDICINE. DELIVERED 16TH OCTOBER 1888.

By W. SCOTT LANG, M.D., F.R.C.S.E.

GENTLEMEN,—Although I have been for a considerable time a teacher of Surgery and Surgical Pathology, this is the first occasion on which I come before the Edinburgh Medical School to commence a systematic course of the usual one hundred lectures on Surgery. It is by the kindness of Mr Joseph Bell, who has placed his valuable museum at my disposal, that I am now enabled to enter upon a complete course of lectures.

I have heard it stated by one of the oldest and best teachers in this School, that to devote one day to an introductory lecture was a waste of one per cent. of our time; and as this is, without doubt, a serious consideration, I propose, without altogether wasting the hour to-day, to direct your thoughts to some curious considerations regarding the causes of disease.

Heredity and diathesis will be frequently alluded to, chiefly as predisposing causes of disease; and I propose, in the first place, to consider with you some of the better known effects of hereditary influences.

Heredity is markedly shown in (1.) *Physical Defects*, such as hare-lip, with or without cleft palate, also in cases of webbed or supernumerary toes and fingers, in congenital luxation of the hip-joint, and in a peculiar brittleness of the bones, with liability to fracture. Many authorities are quoted supporting these statements in detail. Hernia is looked upon as a physical defect, and its hereditary nature is well known. Mr Wood alludes to several families where this hereditary tendency showed itself. There is in St George's Hospital Reports an account of a patient in whom both patellæ were absent, and both his father and grandfather suffered from the same defect.

(2.) *Variations in Epidermic Structures and Pigment*.—The inheritance of these variations is looked upon as quite usual, and is seen every day in the colour of the hair and in the colours of

animals. Albinoes and those who are colour-blind also come into the category.

There has been noted in connexion with the epidermic structures a curious correlation of variation, which sometimes occurs with persistent regularity. Mr Darwin alludes to this, and describes cases where variations in the hair always co-existed with a certain variation in the teeth; and just as we meet with pronounced hereditary transmission of epidermic structures, so their diseases are also transmitted.

The sebaceous tumour of the scalp (or wen), and also warts, are markedly hereditary. There are cases of Dr Stewart's recorded in the *British and Foreign Medical Journal*. One of these was that of a woman, aged 54, who had thirty-three wens on the scalp, and some had been excised. In her immediate family "no female who had attained the age of ten was without them, whilst none of the males in the family had ever had them."

This brings before us a point which will require further consideration, viz., the *sexual limitation of disease*.

It is in diseases of the epidermic structures that this sexual limitation is most noticeable, and it is only natural that this should be so, for we must reflect that the sexes are generally readily distinguished by the differences in epidermic structures—as witness the mane of the lion and the brilliant plumage of the male bird.

But, perhaps, the most striking illustration of this is provided by the case of Lambert, the famous "porcupine man." This man was exhibited at meetings of the Royal Society in the year 1731. He had strong epidermic excrescences along his back, which were only comparable to the quills upon the porcupine. In the year 1802, "two brothers, John and Richard Lambert, lineal descendants from the celebrated porcupine man, visited Germany. The males alone, for four generations, suffered from the disease, and the two brothers referred to had seven sisters who were free from it."

Now, although these females were free from the disease, they doubtless had the power to hand it down to their male offspring.

This is what is called *atavism* or latent inheritance. It is noticeable in various diseases, and has been called the key to morbid inheritance. It is especially noticeable in a disease of special interest to us as surgeons, viz., *hæmophilia*.

(3.) *Diseases*.—Besides the surgical complaints already mentioned, we find heredity showing itself in such diseases as leprosy, cancer, and even hydrocele. Sir Henry Holland records the case of a family of four, three of whom suffered from hydrocele; the fourth was a female, and although she did not show it, she had a son who was affected with it.

Mr Squire describes the case of a *still-born child* in whose kidney he found a number of small calculi, and the father of the child was at the time passing gravel. This may be taken as illustrating the markedly hereditary character of gout.

4. *The Effects of Mutilations.*—Incredible as it may at first sight appear, there is sufficient evidence forthcoming to prove that the effects of mutilations may be directly transmitted from parent to offspring through the agency of the sperm cell or germ cell. Darwin describes the case of a soldier who had lost one eye, and his wife bore him a monocular child. Savage tribes who mutilate their faces occasionally transmit the marks of such mutilations to their children. Cattle are born with their ears cut, and this mutilation is not only transmitted, but has been perpetuated, through many generations.

Quite recently I read an authenticated account of a cat which had its tail broken by being caught in a door. The tail mended, but was afterwards crooked, and the kittens inherited the deformity. But this is certainly rare, and I could scarcely ask you to credit such statements, were it not for the evidence of Mr Brown-Séquard, the renowned physiologist, and, of course, a most accurate observer. In *The Lancet* of 2nd January 1875 he contributed a paper on the "Hereditary Transmission of the Effects of mere Accidental Injuries." His observations were on guinea-pigs, and the deformities in the parents arose from his experiments on the nervous system.

Various deformities, such as partial closure of the eyes, or a change in the shape of the ear (brought on by mutilation of the nerves in the parent), were transmitted to the offspring. In some cases where, by division of the sciatic nerve, the hind toes had been rendered anæsthetic, the parents had eaten up their hind toes; and Mr Brown-Séquard noted "the absence of two toes out of the three in the hind legs—sometimes of all three—in animals whose parents had eaten up their hind toes." He had under his care many thousands of guinea pigs. He noted this inheritance of the mutilation thirteen times, and states that there were probably more cases of which no note was taken. Further, he "never saw a guinea-pig born toeless which was not the offspring of parents accidentally deprived of toes."

It should, in fairness, be stated here that the prepuce of the Jews, although constantly removed, is stated to be as long to-day as it was in the days of Abraham. This is the opinion of a chief rabbi, so that here the effect of the mutilation would appear not to be transmitted. From the positive and carefully recorded evidence of Mr Brown-Séquard, however, we are bound to conclude that the effects of certain mutilations may, under certain circumstances, be transmitted from parent to offspring.

The effect of hereditary transmission is readily seen in many acquired variations, such as those produced by climate, habits, etc. In left-handedness and in trivial things, such as tricks, attitudes, or movements, it is often seen in a very striking manner in children, and even in infants. It is also manifested in the moral and mental qualities; and tendencies to thieving, drunken-

ness, and insanity are known to be markedly hereditary. Can we doubt, also, that it has its effect on the internal organs, and that a similarity in the manner in which physiological processes are carried on is transmitted from parent to offspring? This, indeed, brings us to the consideration of *diathesis* and its transmission; but before taking it up more fully there are two *modifications of heredity* which claim some notice. They are:—

1. Atavism.
2. Indirect inheritance.

Atavism has been already alluded to. It is latent inheritance, and is the normal phenomenon in the transmission of hæmophilia, or the hæmorrhagic diathesis.

But other diseases also appear to “skip a generation” at times, and this is noticeable in diseases affecting the skin, such as ichthyosis. It doubtless also occurs in internal diseases, and probably explains the origin of such a term as family phthisis as distinguished from hereditary phthisis.

Indirect Inheritance.—This term is used to express the inheritance of any quality not belonging directly to either parent, and raises the question of the influence of a previous marriage on the succeeding offspring. Gamekeepers who rear dogs, and, indeed, all breeders of stock, are well aware of the fact that the female which has once been put to a male of a different breed never again breeds true to males of her own kind. All her subsequent progeny are liable to show traces of the mongrel. However inexplicable this may be to us, it is no myth. Carefully recorded cases have been brought before the Philosophical Society and the Royal Society.

In the *Philosophical Transactions* of the year 1821 will be found accounts of some cases. One was that of an Arabian mare belonging to Lord Mostyn. This mare bore a hybrid to a quagga, and was subsequently put to a black Arabian horse on two separate occasions. The two foals sired by the Arabian horse strongly resembled the quagga. “These colts were partially dun-coloured, and were striped on the legs more plainly than the real hybrid. One of the colts had its neck and part of its body plainly marked with stripes.

Another case vouched for by Lord Mostyn was that of a mare which had *previously* borne a foal by a quagga. Its offspring by a thoroughbred horse “had also stripes, and the mane and hoofs resembled those of a donkey or zebra.”

Meckel observed similar results from the crossing of a wild boar with a domestic sow. “In each of the sow’s subsequent litters by domestic boars the young were easily distinguished by traces of the wild boar.”

Similar phenomena have been noted in the breeding of other animals, such as cows and dogs.

Some physiologists have suggested, by way of explanation, that the mother is affected by the embryo through the foetal circulation,

but Mr Darwin inclines to the belief that the male acts directly. Whatever the explanation may be, we must not lose sight of the facts; and the apt words of Mr Sedgwick regarding the mother may be here quoted,—“The blood is permanently affected, and the system undergoes a change, never, as it were, to be washed out.”

On this ground it may be argued that the offspring of a healthy couple may be influenced by the marriage of a widow whose previous husband was diseased (Sedgwick).

The Laws of Heredity cannot be stated with any degree of exactness, but have been tabulated by Mr Darwin as well as by other lesser authorities.

There is a tendency in every character, new and old, to be transmitted by seminal generation, though often counteracted by known or unknown causes. Besides the points already alluded to, such as atavism or reversion and sexual limitation, there is noticed “inheritance at corresponding periods of life, with some tendency to *earlier* development.”

Mr Darwin alludes to the germ as “a marvellous object;” and Montaigne, when reflecting on these mysteries, declares he has no need of miracles. To think that this drop of semen, this cell indeed, is crowded with “invisible characters proper to both sexes, and belonging to a long line of ancestors. The characters are written on it with invisible ink, ready to be evolved whenever the organisation is disturbed by certain known or unknown conditions.”

We next take up the consideration of diathesis, its nature, its origin, and its transmission from parent to offspring.

Diathesis in its widest sense may be regarded as the constitutional state or tendency, and, as regards some diseases, it may be looked upon as the soil on which a virus may be planted, and may find itself able to grow, or quite unable to take root.

The Origin of Diathesis.—Much has been written with a view to elucidate this question, for although a diathesis or diathetic tendency is frequently inherited, it may also be acquired. When inherited, there is probably always a tendency to transmit it, but when acquired, a diathesis or diathetic tendency is not of necessity transmitted from parent to offspring.

The origin of diathesis presents a problem not more complicated than the origin of the different dialects of which we notice examples in almost every county. It seems probable, however, that the surroundings, the climate, the food, and the general hygienic conditions are the agents chiefly at work in producing or determining the diathesis.

Dr Brakenridge, in the *Medical Times* of June 1869, contributes a valuable paper elucidating this point. One of his conclusions is as follows:—“A constitution thus tending to become adapted to those external influences to which it is constantly exposed, modification of structure and function, is after a time rendered so far permanent as to be more or less hereditary.”

This truth is well illustrated by the Jews, who marry only amongst themselves, and are all descended from one original stock. In the year 1862 Sir Charles Nicholson brought before the British Association an account of a race of Jews in India, who are *perfectly black*, and the physiognomy of the Jews in China has long since become the same as that of the Chinese, although the Jews marry strictly amongst their own people. We cannot doubt that changes in physiological processes or diathesis are similarly brought about, and that such changes are transmitted from parent to offspring.

There is another diathesis or diathetic change which is less frequently thought of, but yet is very definite in character. I refer to the diathetic change which comes over the body after it has passed through such a disease as measles or vaccinia. As regards measles, it might here be called for convenience a "measles proof" diathesis.

That there is some subtle change in the body no one doubts; what the change is, we have not the slightest knowledge. It defies chemistry and the microscope. It is not an impaired diathesis, but a protected or strengthened diathesis; and the fact of its existence is well known to, and fearlessly acted upon, even by the general public. It is worthy of thought that this protected or strengthened diathesis is not transmitted by inheritance.

The progeny still require to be vaccinated, and are liable to take measles even when the parents have been efficiently vaccinated, and have acquired, so to speak, a diathesis proof against measles.

The practical importance of diathesis is further illustrated by the manner in which natives resist malaria or malarious influences which are hurtful, or even fatal, to the white man.

But it is not always a protected or strengthened diathesis which comes under consideration. Sometimes, on the contrary, a constitution shows a peculiar susceptibility to a certain disease. This is illustrated by repeated attacks of erysipelas occurring in the same person, and Sir William Jenner also states that there are families which show a decided proneness to acquire such diseases as diphtheria and typhoid fever. He records cases of these diseases occurring in members of the same family, although living at great distances from each other, and not exposed to the same source of infection.

Enough has been said to show the importance of diathesis, as constituting a soil suitable or unsuitable for the development of active disease.

The Transmission of Diathesis.—It has been recognised for ages that the gouty and scrofulous diatheses are markedly hereditary, although it is a curious fact that papers are still extant which were written with a view to prove that gout was contagious. No one, however, believes this at present, and these two diatheses are named as being typical of the transmission by heredity of a

faulty or impaired diathesis. This is in marked contrast to the diathetic change produced in the system by vaccinia, or that produced by measles.

Now, vaccinia arises from an implanted virus (by contagion), measles also arises from an implanted virus (by infection). In neither case is the protected diathesis transmitted by inheritance.

These facts would almost entitle us to generalize or attempt to state a law, that *in diseases where there is an active causal virus which requires to be implanted, the diathetic change produced is not transmitted by inheritance.* Should this be true, the converse will also be true.

In this grouping, syphilis ought to be placed in the same category as vaccinia, to which it has many points of resemblance; and there is no reason for believing that the offspring of a parent who has recovered from syphilis inherits any protected diathesis.

As regards the immediate causes of disease, only a passing reference will here be made; but just as the potent causal virus of measles may exist in the atmosphere, so there are many other poisons existing around us in the atmosphere, on the bed clothes, and on the skin itself. These poisons may enter the body either by infection or contagion, and it is the knowledge of this fact which lies at the foundation of all the modern practice of antiseptic surgery.

All future great discoveries in surgery must be in the direction of increasing our knowledge of the causes of disease.

In an address a few years ago upon finality in surgery, Mr Erichsen pointed out that in some departments finality must be looked upon as having been attained. For example, all the arteries have been tied, probably as high as they ever will be tied, amputation has been successfully performed at the hip-joint, and no one is likely to attempt it any higher; such an operation as excision of the elbow-joint has probably been brought to as high a pitch of perfection as it ever can be, but it is altogether different when we come to consider questions regarding surgical diseases and their causation. Here, indeed, there lies before us the great ocean of the unknown, the great field for future discoverers.

II.—AN INQUIRY INTO THE METHOD OF CURE OF EMPYEMA, BEING AN INTRODUCTORY LECTURE TO A COURSE OF SURGERY.

By J. W. B. HODSDON, M.D., F.R.C.S.E., Assistant-Surgeon, Edinburgh Royal Infirmary.

GENTLEMEN,—When I determined to deliver a course of lectures upon Systematic Surgery during this winter session, the question

which naturally arose in my mind was upon what subject should I first address you ?

For my own part, I am inclined to think that introductory lectures, consisting as they usually do of platitudes, might well be dispensed with, especially as the time placed at our disposal to traverse completely and thoroughly the ground covered by a subject of such magnitude and importance as Surgery is so short. It being the use and wont, however, to deliver an introductory lecture, I had to select a suitable subject. In what follows I shall attempt to indicate the spirit in which you should endeavour to study Surgery, by discussing a subject which affords an admirable illustration of the method I would advocate.

Let me impress upon you at the beginning, that there is no such thing as so-called pure Surgery for him who would be a scientific and successful practitioner of this art, although I would not have you infer from this that there do not exist what are known as pure surgeons. A man may practise Surgery only, and at the same time have an intimate and accurate knowledge of Medicine and other sciences; in fact, it is from among such men that our most eminent and accomplished surgeons are drawn, and the reason of this is not far to seek. They take a broad and scientific view of their art, and do not regard their patients merely as subjects for an operation or for the application of this or that apparatus or splint.

It is the importance of looking upon Surgery from this broad and scientific point of view, and of bringing to bear upon it a knowledge of other sciences, that I would emphasize. Thus, while Anatomy belongs especially to the surgeon, and a thorough knowledge of it makes us accurate in our work and manipulations, and guides us clear of the shoals which lie in our course, we must not overlook the importance of Physiology and Physics. An intimate acquaintance with Medicine is, in the present state of surgical science, almost as indispensable to the surgeon as Surgery itself.

Let me give you a few examples. The antiseptic treatment of wounds was introduced by one who is a physiologist as well as a surgeon; electricity, which is of such value in the treatment of vascular tumours, and which is now being extensively applied to a variety of other surgical affections, could never have been utilized without an accurate knowledge of Physics. Would it have been possible, think you, for the recent advances which have taken place in brain surgery to have been made without a thorough acquaintance, not only with Medicine, but with Physiology also? Undoubtedly they would not; and this question cannot be better answered than by your reading an able address on this subject recently delivered before the British Medical Association in Glasgow.

There is yet another department of medical science in which

great progress has of late years been made, and which serves as a further illustration of what I have been pointing out to you. I refer to the surgical treatment of the lungs and pleural cavity; for while, until recently, abscess of the lung belonged exclusively to the physician, it may be now said to be almost entirely the property of the surgeon.

Having, I trust, sufficiently emphasized the importance of avoiding the pursuit of the study of our subject from a narrow point of view, and having shown you that some of the greatest achievements which have been attained by our art have been in directions where they would have been impossible had a knowledge of Surgery pure and simple been relied on; I shall not detain you further with general remarks, but proceed to discuss the subject of this lecture, namely, "An Inquiry into the Method of Cure in Empyema."

I selected Empyema as suitable for illustrating what I have just put before you, for several reasons.

In the first place, like so many diseases, it lies on the border line, so to speak, between Medicine and Surgery; and thus, while constantly coming under the care of the surgeon, requires a knowledge of Medicine. An acquaintance with Physiology and Physics is indispensable, in order to understand how a cure is to be scientifically brought about, and failure avoided; and its management, while illustrating many points of general surgical treatment, brings out very forcibly three most important ones—namely, the relief of tension, attention to free drainage, and the use of antiseptics. And I have further selected it, because it is a subject to which I have directed my attention for some time past. I trust to be able in what follows to place before you some observations which, so far as I can ascertain, have not hitherto been published.

By an empyema we mean a collection of pus or, as it is popularly termed, "matter" in the pleural cavity. The causes of this condition I shall not here enter into, because time will not permit of my so doing, nor can I, for a similar reason, dwell upon the diagnosis of this affection.

I shall merely endeavour to show you how in this disease a cure can be brought about; what are our best methods for attaining this end; why in certain cases we fail to obtain a satisfactory result; and the treatment to be adopted under these circumstances.

We may, for the sake of convenience, regard an empyema as a chronic abscess, under special conditions. Like a chronic abscess, its walls are frequently lined with a layer of granulation tissue; and there is, under certain conditions, a tendency to the formation of thick lymph material. Like a chronic abscess, it can only be cured by its walls coming together after its pus has been evacuated. It is in the walls, *i.e.*, the lungs, chest-wall, diaphragm, and other structures in relation to this chronic abscess, in which these special conditions exist, and to which we have to direct our

attention in determining how the cavity closes when its contents have been let out.

In considering empyema from the point of view which I have indicated, and in order that we may have a clear conception of our aims in its treatment, it will be necessary to take up briefly—(1), The factors which enter into normal breathing, and the state of the pleural cavity (so-called) in health; (2), How the lungs, chest-wall, diaphragm, and other structures are affected by the presence of fluid in the pleural cavity? (3), What happens when, for the purpose of treatment, we let out this fluid and admit air? Having answered these questions, we shall be in a position to inquire—(1), How the cavity closes; (2), What gives rise to failure; and, lastly, I shall point out to you what are our best lines for treatment under the various conditions which may arise.

Before we proceed to consider the state of matters in health, there are two points to which I would direct your attention in order to avoid confusion as to terms we shall frequently employ.

We shall frequently speak of the pleural cavity, but you must bear in mind that there is no such thing in health; for the lung is always in contact with the chest-wall, and that a cavity only exists when air has been admitted or fluid formed.

Again, we shall constantly refer to negative pressure in the pleural cavity. With regard to this, you must clearly understand that this negative pressure is estimated with reference to the atmospheric pressure, which is 760 mm. of mercury; therefore when we speak of -10 , we mean $760 - 10 = 750$.

1. In the first place, then, let us consider *the factors which enter into normal breathing, and the state of the pleural cavity in health.*

The *lungs* are placed in a more or less distended state in the air-tight thorax, and when by the contraction of certain muscles, of which the diaphragm is most important, the thoracic cavity is enlarged, the pressure of the air within the lungs becomes less than that outside the body, and, in consequence of this difference of pressure, air rushes into the lungs through the trachea until an equilibrium is established. This constitutes inspiration. Upon relaxation of the respiratory muscles, the elasticity of the lung and chest-wall cause the chest to return to its original size; the pressure within the lungs is now greater than that outside, air rushes out of the trachea until equilibrium is again established, and this constitutes expiration.

Now, one of the most important factors in expiration is the elasticity of the lung tending to cause it to collapse, and we have to inquire why the lung in a semi-distended condition is pressed against the chest-wall. This elasticity we may talk of as the collapsing power of the lung, which of course is greatest when the lung is distended; thus at the end of a normal inspiration it is

equal to 9 mm., when forced 30 mm. to 72 mm.; at end of ordinary expiration it is equal to 7·5 mm., if forced 62 mm. to 100 mm. (Donders). This force of 9 or 7·5 acts against the intrapulmonary pressure, which is equal to 760, and we may represent the state of matters thus at the end of inspiration: $760 - 9 = 751$. The lung is therefore pressed against the chest-wall by a force equal to 751 mm. The atmospheric pressure equal to 760 acts on the chest-wall, but cannot, on account of the intervention of this structure, press upon the lung. Now at the end of expiration we have $760 - 7·5 = 752·5$ as the force with which the lung is pressed against the chest-wall.

From these figures we must conclude that the negative pressure in the pleural cavity at the end of inspiration is 9, and at the end of expiration 7·5. It has been experimentally determined by Homolle¹ to be 10–12 at end of inspiration, and 6·5–4·5 at end of expiration.

In the normal state we have the *diaphragm* in contact with the lung; and the *heart*, according to Douglas Powell, is suspended between the two lungs. Now, when fluid has formed in the pleural cavity in consequence of inflammation, certain effects are produced upon the lung and other structures, and this leads us

2. To inquire *how the lung and these structures are affected by the presence of fluid.*

As regards the Lung.—We know that the lung tends to collapse, but it is obvious that this cannot take place until the pressure outside the lung is greater than that with which the lung presses against the chest-wall, that is 752·5 or 751.

Some interesting observations have been made upon the tension in pleural effusions by Douglas Powell² and Homolle.³ The former states that positive pressure does not occur until the pleura is two-thirds full, and has found it to vary from 13 to 39 mm. of mercury at the beginning of the tapping. While Homolle found it to be almost always positive, sometimes as low as — 2 or 0, or as high as 20 or 30. But we must constantly bear in mind that anything over — 7·5 will compress the lung.

Let us calculate how much pressure will be exerted upon the lung under these circumstances. We may take the mean negative pressure in the pleural cavity as — 8, and the mean pressure exercised by the lung against the chest-wall as 754.

When the intrapleural pressure is—

– 2	we have	$760 - 2 = 758$	acting against	$754 = 4$	as the pressure on lung.
0	“	$760 - 0 = 760$	“	$754 = 6$	“ “
+ 20	“	$760 + 20 = 780$	“	$754 = 26$	“ “
+ 30	“	$760 + 30 = 790$	“	$754 = 36$	“ “

And thus we see that the lung is practically always compressed when there is any quantity of fluid in the chest.

¹ *Revue Mensuelle de Médecin et de Chirurgie*, February 1879.

² *Medical Times and Gazette*, vol. ii., 1882, p. 602.

³ *Loc. cit.*

The amount of compression will, of course, depend upon—(a.) The quantity of fluid and the length of time the effusion has existed—the longer the more compression. (β.) State of the lung. When healthy and elastic, it will be more compressed and more readily expanded than when diseased. (γ.) Condition of the chest-walls. If these be rigid, pressure will be more concentrated upon the pulmonary tissue than when the opposite is the case.

From the state of the lung we now pass on to inquire if the blood-pressure is increased in the pulmonary artery in pleural effusions. I can find no observations on this subject; but one would, *a priori*, suppose that it is especially, should the lungs be elastic and easily compressible and the effusion recent.

The heart, and together with it the mediastinum, as Douglas Powell has pointed out, is displaced from the beginning in pleural effusion, and its displacement bears no proportion to the extent of the effusion. The diaphragm, which is kept arched by the negative pressure in the chest, will be depressed as this diminishes, and if the pressure be sufficient completely bagged down, but this, according to Powell, does not take place until the intrapleural pressure becomes positive. The chest-wall will become bulged out in proportion to its own elasticity and the state of the lungs. Lastly, we know that granulation tissue tends to form adhesions, and, therefore, according to the chronicity and nature of the effusion and the patient's general condition we find the lung more or less bound down.

Having considered the state of matters when there is fluid in the chest, we have now—

3. To take up *what happens when, for the purpose of treatment, we make an opening into the chest-wall.*

By this procedure we substitute air for fluid, for, as the latter flows out a free entrance of the former is afforded; and although the whole of the fluid is not usually at once evacuated, the entrance of air will be sufficient to cause a more or less complete collapse of the lung in proportion to the elasticity of the pulmonary tissue. Any portions of the lung which have not collapsed by the pressure of the effusion will now be compressed by that of the atmosphere, unless they be fixed to the chest-wall by adhesions. For we have $760 + 8$, the collapsing power of the lung, acting against 760.

The blood-pressure in the pulmonary artery will now at least be temporarily increased, the heart further displaced, and the diaphragm forced down.

Having considered the state of the lungs, diaphragm, and other structures when an opening has been made, we are in a position to inquire—(A), *How the cavity is closed?* and (B), *What gives rise to failure in this process?* I have stated, you will remember, that a cure can only be accomplished by the walls coming together. Bearing in mind, then, the special conditions of

this chronic abscess, it is evident that the cavity can only be obliterated by (α), the lung meeting the chest-wall; (β), by the chest-wall going to the lung; or, as actually happens (γ), by a combination of these means.

(A.) The question of *how the lung comes up to the chest-wall*, or, in other words, what are the forces which cause its re-expansion, is not yet definitely settled. Many explanations have been offered of this process. Roser¹ and Godlee² attribute it to the contraction of adhesions pulling the lung out bit by bit; Weissgerber,³ principally to the forces of expiration, and Robertson⁴ to valvular action at the wound. In what follows I shall endeavour to show you that it does not depend upon one factor alone, but upon many, and to draw your attention to some experiments which I have made bearing upon this subject.

We shall best understand the action and importance of these factors if we consider them in the following order:—(1), Normal breathing and its modifications; (2), Blood-pressure; (3), Movements of the chest-wall during respiration and valvular conditions at the wound; (4), The formation and contraction of adhesions.

1. *What is the part played by normal breathing?* This undoubtedly assists to a certain extent, for it is a physiological fact that the intra-pulmonary positive pressure during expiration is greater than the negative pressure during inspiration; and, according to Weissgerber, a certain quantity of air will be pressed during each expiratory effort from the sound lung through the bronchi and into the aveoli of the collapsed lung, causing expansion, while during inspiration, in consequence of the action of atmospheric pressure through the wound, the lung will be compressed. But the positive pressure of expiration is greater than the negative pressure of inspiration, therefore the lung will on each occasion occupy a greater volume—in other words, undergo an intermittent expansion. While this action of normal breathing in the expansion of the lung is not nearly so powerful as some other forces, it leads us to understand how certain of its modifications act; and of these prolonged expiratory efforts, and coughing especially, are of great importance.

We have seen that expiration in natural breathing tends to expand the collapsed lung, hence it is quite evident that in coughing, for example, when the positive pressure of expiration is still more increased, because more air is forced from the sound into the collapsed lung, benefit will accrue. Dr James⁵ has pointed out that patients with an empyema can often be noticed to expire with a closed glottis. A very interesting case bearing upon this

¹ *Berlin. Klin. Woch.*, 18th Nov. 1878.

² *Lancet*, 9th Jan. 1886.

³ *Berlin. Klin. Woch.*, 24th Feb. 1879.

⁴ *Medical Chronicle*, March–July, 1888.

⁵ *Trans. of Med. Chir. Society, Edin.*, 1886–87.

point was mentioned by Dr Sinclair¹ at a meeting of the Medico-Chirurgical Society in 1887, during a discussion on this subject. A patient of Dr Sinclair's, who happened to be an amateur cornet player, suffered from empyema, which did well, as is so often the case, up to a certain point, when the lung ceased to expand further, and an obstinate fistulous opening remained, which, however, rapidly closed when the man was permitted to resume his favourite amusement. We also know that in small wounds of the chest-wall the lung can be actually prolapsed during expiration; and it has been observed in dogs when the lung is exposed, that a marked expansion takes place on the animal attempting to cry.

I would have you note, then, that expiration, especially when forced, is of great importance in the closing of the cavity. We must bear in mind, however, that it is only when there is an opening that its benefits are so well marked. If there be fluid in the chest the lung can only be expanded by this means through an increase in the cavity of the thorax, for fluid is not compressible; when, however, there is an opening it is different, for air passes out during the expiratory efforts.

From normal breathing and its modifications let us now turn to (2.) *Blood-pressure*, and consider if it can in any way favour expansion. This force has been suggested as an important factor in the process, but, as far as I am aware, no actual observations on the subject have been made. Through the kindness of my friend Dr Noel Paton, I was enabled during this autumn to make a series of experiments on this subject in the physiological laboratory at Surgeons' Hall. Time will not permit of my entering into the details of these experiments, which I hope to publish. Suffice it to say, that by circulating a mixture of equal parts of defibrinated blood and normal saline solution through the removed lungs of rabbits at a pressure of 12 mm. of mercury—the estimated normal pressure in the rabbit's pulmonary artery—I was able to increase the lungs on an average nearly 30 per cent. of their volume. The figures were very constant, and in two cases where the expansion did not reach 30 per cent., it was readily explained by marked ecchymosis of the lung interfering with free circulation.

From these observations we learn that a collapsed lung is capable of considerable increase in its volume even by the normal blood-pressure in the pulmonary artery, and it is not, I take it, unreasonable to suppose that when air is admitted, and the lung collapses, the blood-pressure will be increased. Here, then, we have alone a considerable force for the expansion, even if an increase of the pressure be denied, and when added to other means, such as expiratory efforts, a most important factor.

We still have to deal with—

¹ *Transactions of Med. Chir. Society, Edin., 1886-1887.*

(3.) *Movements of the chest-wall during respiration and valvular conditions of the wound*, and inquire if they have anything to do with the point at issue. We know that where there is an opening in the chest-wall air passes in with inspiration and out with expiration, and it has been pointed out by Robertson,¹ that in a few days after the opening has been made, while the edges of the wound are separated during expiration, thus readily permitting a free egress of air, they tend to fall together during inspiration and hinder its entrance. He also draws attention to the probability of this valvular action occurring when, as is usually the case, a drainage-tube has been introduced, and assumes that the protective and dressing, becoming soaked with and saturated by discharge, will act as an efficient valve.

Respiratory movements do good, then, in the first place, when a valvular action at the opening exists, for as more air is forced out by expiration then enters during inspiration, there will be, in proportion to this difference, a degree of negative pressure produced in the pleural cavity, which will, of course, be favourable to and assist in expansion.

The second way in which respiratory movements do good is by tending to draw out the lung, where adhesions sufficiently strong to permit of this have formed between the pulmonary pleura and that lining the chest-wall and diaphragm.

Lastly, we know that granulations become converted into fibrous tissue, which tends to contract. (4.) *Adhesions* form, and this leads us to ask what bearing they have upon this process of expansion. We shall see they have a twofold one.

(a.) If they form before the cavity is opened, and when the lung is compressed by the effusion, they will tend to bind down the lung and prevent its expansion, thus contributing the greatest obstacle to a successful termination.

(β.) Their action in bringing about a cure has had much importance attached to it by some writers. Roser,² in 1878, stated that expansion took place in consequence of the contraction of adhesions; and Godlee³ in 1886 writes, that by their action the "lung is drawn out and made to expand."

We know that adhesions of considerable thickness and strength are present in old-standing and septic cases of empyema, but we seldom have an opportunity of ascertaining their presence in recent cases which have been successfully treated antiseptically.

I am indebted to the kindness of Professor Fraser for being permitted to make some observations upon this point in the Materia Medica Laboratory of the University. The experiments were performed in the summer of 1886.

A pleural effusion was artificially produced in dogs, and treated subsequently by antiseptic incision and drainage, the tube removed at intervals varying from two to four weeks, and the

¹ *Loc. cit.*

² *Loc. cit.*

³ *Loc. cit.*

animals killed when the opening had been closed for the same periods. At the post-mortem examination the lungs were found in all the cases to be completely expanded, and the pleural surfaces united by recent adhesions throughout their entire extent. These adhesions were not of such strength and thickness as to lead one to suppose, they had been capable of exercising any degree of traction upon the lung—in other words, of taking an active part in expansion.

From these experiments and from the fact that in some cases of empyema the lung is found to expand to a certain extent almost immediately after the pus has been let out—that is, before there has been sufficient time for adhesions to form between the pleural surfaces, and by their contraction to pull the lung out. I am inclined to differ from those who regard the contraction of recently-formed connective tissue as one of the principal factors in the process of re-expansion of the lung.

That adhesions are beneficial in assisting in the closure of the cavity I have no doubt. In recent cases I think they play a more or less passive part, merely retaining the pleural surfaces in contact when the lung has been expanded by other means; while in the more chronic cases they may possibly, when of sufficient strength, do a certain amount of good by their contraction, and will be of service by favouring expansion during the respiratory movements of the chest-wall and diaphragm if they be in favourable positions.

Note, then, that the formation of adhesions before pus has been evacuated and expansion begun is an important obstacle to the successful treatment; and, further, that if the expansion takes place unequally, and some parts become adherent to the chest-wall, we are liable to have an encysted empyema; while, on the other hand, they may be of advantage in the way just described.

We have now followed the process by which the lung comes up to the chest-wall, and have considered the various factors which take part in the production of re-expansion, and it remains for us to inquire (*B.*) *how the chest-walls, including the diaphragm and mediastinum, meet the lung?*

First, with regard to the *ribs*. When the cavity is opened and its contents evacuated, these structures fall together in proportion to their elasticity, and thus tend to meet the lung and hasten union between the two pleural surfaces; a considerable amount of deformity often remaining in consequence. In children, however, where the parieties of the thorax are notably elastic, this deformity frequently passes completely away, and we can conceive how by this means, with the pleural surfaces more or less adherent, the lung will be further expanded after the cavity closes.

As the positive pressure diminishes in consequence of increase in the volume of the lung the *diaphragm* rises up, and thus assists in the closure of the cavity; while, as we have already seen,

as soon as adhesions form between its pleural surface and that of the lung, it will, by its contraction, further aid in expansion. The *heart* and *mediastinum* in a like manner, and for the same reason, return gradually to their normal position, and also help to obliterate the cavity.

We thus see that in favourable cases a cure is brought about by a combination of the lung advancing towards the chest-wall and the latter receding towards the former.

Having pointed out to you the manner in which an empyema is cured, we have next to take up the causes of failure; but before doing so let me give a brief *résumé* of how the cavity is closed in favourable cases. This result depends, as I have already stated, not upon one factor alone, but upon several, and is, I take it, as follows:—The lung is expanded intermittingly to a slight extent during normal breathing, markedly so by forced expiration and coughing, and these forces are aided by blood-pressure, which is an important factor; air is forced out at the opening during expiration, and is to some extent prevented entering by the falling together of the edges of the wound, or by the valvular action of the dressings, in consequence of which, and also of the possible absorption of a small quantity of air between the times of dressing, if it be not necessary to do so frequently, a degree of negative pressure is produced in the cavity, which is, of course, also favourable to expansion. As the lung is being expanded by these means, the formation of adhesions between the two pleural surfaces serve to maintain it in contact with the chest-wall, which has, in proportion to its elasticity, been falling in to meet the lung, while the diaphragm, by rising up and becoming adherent, and the mediastinum, by returning to its normal position as expansion progresses, also assist in the closure of the cavity.

We are now in a position to seek for an explanation of the *circumstances which give rise to failure* on the part of the walls of this chronic abscess—empyema—to come together, and here, again, we must look to the lung itself and the chest-wall. I may state, however, that by far the greater number, if not the whole, of the cases of failure are met with in adults; for in children, with their more elastic lungs and less rigid chest-walls, it is exceedingly rare for us to fail in obtaining a satisfactory cure.

1. *As to the lung.*

It may have lost its elasticity in consequence of inflammatory changes in its structure, producing fibroid induration and other conditions which render it wholly or partially incapable of expansion. By far the most common cause, however, although the two may be combined, is the fixing of the lung by dense adhesions and the coating of its surface with a thick layer of lymph material.

If we examine the thorax in such a case we find the pleura enormously thickened, the lung adherent, and partially or totally

incapable of expansion, lying posteriorly in the hollow formed by the angles of the ribs, and constituting part of the wall of an abscess cavity lined with granulations. This state of matters usually arises from delay in opening, but in patients the subject of tubercle, or who have a tubercular tendency, it may occur at a comparatively early period, and is a strong argument in favour of early opening in such individuals. Then, again, septicity and tension, in consequence of bad drainage, favour a continuance of suppuration, which in its turn conduces to thickening of the pleuræ and hindrance to expansion.

2. *With regard to the chest-wall* one need only remark, that the cause of failure on its part is rigidity, which is, of course, marked in proportion to the age of the patient; and that while the ribs do fall in to a certain extent in all cases, this occurs only to a satisfactory extent in young persons. The diaphragm and mediastinum fail to do good, in consequence of want of expansion of the lung producing a sufficient degree of negative pressure in the pleural cavity to enable the former to rise up or the latter to return to its normal position.

We have now seen how a complete cure is brought about, and the circumstances which give rise to a failure on the part of the cavity to close. There is a class of cases between these two, however, which we very frequently meet, and which, perhaps, most commonly comes under the care of the surgeon. I refer to those cases where expansion of the lung, falling in of the chest-wall, and rising up of the diaphragm, take place to a certain extent; but an obstinate fistulous opening remains, and the patient is exposed to all the risks of prolonged suppuration. This condition is most prone to occur where opening has been delayed, septicity is present, and drainage has been imperfect. We find in such cases the lung unequally expanded throughout, adherent to the chest-wall where expansion has taken place; and where this has failed an abscess cavity exists, or there may be several such abscesses communicating with one another, or with the external wound by narrow orifices. This state of matters is due to portions of the lung being incapable of expansion from changes in its structure, and to thickening of the pleura over it, or to both of these conditions.

Having considered the Method of Cure in Empyema and the causes which give rise to failure, it only remains for us to take up the means at our disposal for bringing about this cure, and for remedying unfavourable results when they arise—in other words, the treatment of this affection.

As the *Treatment of Empyema* would of itself form an adequate subject for a lecture, I can only deal with it in a somewhat general way, for time will not permit of my entering into details.

You will remember that I compared an empyema to a chronic

abscess under special conditions, and we have ascertained what these special conditions are. There is, I take it, only one way in which a chronic abscess, of such a size as the one under consideration, can be treated, namely, by evacuation of its pus. The question now before us is how to evacuate? We may do so in two ways—by aspiration, and by incision with drainage—each of which has its advantages. What, then, is the respective value of these methods in the treatment of empyema, and under what circumstances should they be resorted to? By using the aspirator in the treatment of chronic abscess we evacuate its pus more or less completely, according to its consistence, if proper precautions be taken, reduce the risks of septicity to practically *nil*, and, in a small number of cases, bring about a cure; hence it is that the majority of surgeons give aspiration a trial before resorting to incision, and this applies also to empyema. We know, however, that it is the exception rather than the rule to cure a large chronic abscess, such as a psoas or an empyema, by aspiration; and therefore we look upon it as a method which may be successful, but which, on account of its frequent failure, should not be too long persevered in, for the reasons to be presently stated.

In some cases of recent empyema, and particularly in children, aspiration undoubtedly does good, for we produce a degree of negative pressure in the pleural cavity which, if the lung be not bound down, tends to bring about union between the two pleural surfaces by favouring expansion; we further, by the removal of fluid, diminish tension, which is conducive to pus formation. In order to derive benefit from aspiration, it should be employed at intervals of say three or four days, depending upon the rate of reaccumulation, and thus the operation should be repeated before pus has collected to the same extent as it existed at the previous tapping—in other words, we should aim at always maintaining a negative pressure in the pleural cavity, the advantages of which we have seen. We may expect benefit to accrue from this method of treatment when it is only necessary to tap at longer and longer intervals, and when the pus at each tapping is found to be thinner than at the former one, while it will certainly fail if there be a rapid accumulation of thick pus.

Aspiration should be employed, then, only in the manner indicated, and we should never wait until the chest is full before repeating it; further, unless we find it doing good, we should not have recourse to more than two, or at the most three tapplings. In tubercular patients especially, where inflammation tends to be of a low type and we are prone to have thick layers of lymph and granulation tissue rapidly formed, we should guard against trusting too long to this method of treatment, for the longer we delay opening the greater the risk we run of allowing the lung to become bound down by adhesions and incapable of expansion.

I have told you that aspiration will succeed only in a small

number of cases, notably in children, and I am inclined to agree with those who place little or no reliance in this method of treatment for adults. Now, undoubtedly, one of the principal reasons why the use of the aspirator fails, is because we do not obtain complete removal of pus; and as this is most important in order to effect a cure, we accordingly have to adopt the other method of evacuation to attain this end, namely, incision and drainage.

With regard to incision, one may state it must always, at first at all events, be accompanied by the use of a drainage-tube, and that the employment of strict antiseptics is indispensable. Much discussion has arisen over the question of the best site for the opening. It should not be too low, for the rising up of the diaphragm will interfere with drainage; nor too far behind, in order to avoid delay in the expansion of the lung and adhesion of the pleural surfaces from the back.

The fifth intercostal space, about the mid-axillary line, is a situation which I have found a good one, and, as a rule, one opening only is necessary. Having fixed upon the site for incision, how are we to open? Bearing in mind that free drainage is most important, it is advisable to remove a small portion of rib at the time of opening, in order to prevent the tube being pressed upon when the ribs fall together. This should be done by making an incision along the rib itself, stripping off its periosteum, and cutting about an inch out; we then make a small cut through the thoracic wall and dilate the opening with the forefinger, on the withdrawal of which a large-sized drainage-tube, with a shield or a safety-pin passed through it, should be introduced, and the pus allowed to escape under a piece of lint or cotton wool soaked previously in carbolic or corrosive sublimate solution. When the pus begins to flow out slowly, we should dress with protective and several layers of corrosive sublimate wool. It will be found necessary to renew the dressing frequently during the first few days, and probably more than once during the first twenty-four hours.

Such is the method of opening and draining an empyema; and now as regards the after-treatment. Unless the pus be septic before opening, which sometimes occurs on the left side, as pointed out by Dr Russell,¹ or where there is a communication with the lung, we should not wash out the cavity, lest we should destroy recently-formed adhesions. We should only dress when the discharge has soaked through the wool, and when doing so we should make the patient hold his breath, in order to prevent air entering the cavity during inspiration; this is quite practicable, if everything be in readiness before the dressing is removed. The tube should be shortened as the discharge diminishes. The time at which it should be removed is important, for by keeping it in too long much harm may be done in consequence of its irritation causing continuance of suppura-

¹ *Glasgow Medical Journal*, Sept. 1883.

tion. One cannot lay down any definite rules for its removal, but each case will have to be judged according to the special conditions present; and our best guides are the intervals at which dressing is necessary, and the extent to which the lung has expanded. The patient should be directed to lie on the affected side, in order to favour drainage, and further, half-way round on his face, in order that the lung may tend to fall down by gravity toward the ribs; we should instruct him to have frequent recourse to forcible expiration and coughing, to be followed by cautious inspiration; and abdominal breathing will be of use in favouring expansion when the lung has become adherent to the diaphragm.

This method of treating empyema by incision and drainage will in a large number of cases lead to a satisfactory result. We may expect a favourable termination in all cases in children, in all cases in adults which we get before the lung has been rendered incapable of expansion, and which are not allowed to become septic. There can be no doubt that a serious objection to making an incision into the thoracic cavity, and introducing a drainage-tube, is that, by bringing about a further collapse of the lung, we interfere with its expansion, and accordingly various modifications of the method we have just considered have been adopted from time to time. Thus some surgeons have suggested the use of a drainage-tube with valves. These are, however, liable to become blocked with discharge, often necessitating their removal in order to clean them, and hence cannot be considered more efficacious than an ordinary dressing carefully applied in the way I have mentioned, and maintained accurately in position. The method of continuous drainage by means of the syphon action, however, undoubtedly presents many advantages. By this means we produce a constant negative pressure in the pleural cavity, and thus, by causing a continuous suction power on the lung, which can be regulated at will, favour expansion, we further prevent the admission of air, and, in the avoidance of frequent dressing, greatly diminish the risk of septicity.

Dr Robertson, Surgeon to the Oldham Infirmary, has recently published an exhaustive account of what he terms a Method of Subcutaneous Drainage and Irrigation for the Treatment of Empyema, the principle of which is based on that of the syphon. He employs two tubes, which are introduced into the pleural cavity at different levels, one of which is used for drainage, and the other for irrigation. Time will not permit of my entering into the details of his method, and I would refer those of you who may be interested in this subject to his paper, which appeared in the *Medical Chronicle* from March to July of this year. His statistics of thirteen cases, all children, are not more favourable than we are accustomed to look for in these patients when simple incision and drainage are employed; and, before expressing an opinion as to the value of his method, I should like to know something of the results obtained by its application to adults.

Mr Duncan¹ has also employed a method of syphon exhaustion. The apparatus consists of a large flat piece of rubber, a long rubber tube, and an air-tight, pliable bag. The cavity is filled with warm boric lotion, and the tube, also filled, is inserted into the cavity through a hole in the rubber, which is rendered air-tight at this spot; an elastic bandage round the body keeps the rubber in position. The air-tight bag is filled, and by rolling it upon itself rendered half-empty again, and while the bag is brimming over, the tube, passed through its screw stopper, is inserted into it and screwed home before the pressure is released. The advantage of this method is that the patient can walk about with the bag in his pocket. In the case in which it was tried it undoubtedly did good. In one month the cavity diminished from a capacity of 30 ounces to 7 ounces when the bag was raised, 5 ounces when held on a level with the wound, and $2\frac{1}{2}$ when the bag was lowered, and ultimately to $\frac{1}{2}$ ounce. I saw the man in September, and a small cavity still remained. The case was, however, already chronic when this method of treatment was begun.

Theoretically, the syphon action would appear to be our best means for treatment, but there are many difficulties in the way of its application. I doubt the feasibility of applying it to the extent of causing any marked degree of suction in recent cases, in consequence of the pain and discomfort it would produce; and in a chronic case in which I tried it recently it had to be abandoned on that account.

I am afraid we must return once more to the chronic abscess before I conclude. We know that in this condition persistent suppuration sometimes occurs, and a cure cannot be brought about by simple drainage and incision, and we have to resort to other means; the removal of the cause where that is possible. There are cases of empyema in which, for the reasons already given, the lung cannot come up to the chest-wall, or the latter fall in sufficiently to cause obliteration of the cavity. We have an abscess cavity throwing off large quantities of pus, most probably septic. What are we to do under these circumstances? There are two courses open to us—namely, to leave the patient alone, and exposed to all the risks of prolonged suppuration, such as pyæmia and amyloid degeneration of his organs; or to endeavour to close the cavity.

When the question is thus put to us, there can be no doubt that the latter is our proper line of treatment; in other words, the lung having failed to expand, and being incapable of coming up to the chest-wall, and the cavity in consequence remaining unobliterated, we must make the chest-wall fall in to meet the lung. This can only be produced by the excision of ribs known as Estlander's operation; and I would impress upon you that, before we adopt this line of treatment, we must be convinced that a cure can take place

¹ *Edin. Med. Journal*, July 1888.

in no other way; for it implies that all other methods have been given a fair trial and failed; and such being the case, our operation must be thoroughly done, and not less than six, and probably eight ribs, according to the size of the cavity, should be resected.

Gentlemen, I have now finished. There are many points upon which I would fain have dwelt at greater length, and others which it has been necessary to pass over completely, in consequence of the time at our disposal being so short. If what I have told you concerning the "*method of cure in empyema*" has impressed upon you the object I had in view when I began this lecture, namely, the importance of pursuing the study of Surgery from the broad and scientific point of view to which I have already referred, I shall feel that this hour has not been misspent.

I may have appeared to have underestimated the importance of the practical part of our work, but my remarks apply with equal force to this also. Let me give one out of many illustrations bearing upon this point. You must not regard this or that splint as *the* one to be applied to this or that fracture, but, given a broken bone, you should consider what is the best means for treating such an injury, the principles (and here a knowledge of Anatomy and Physics comes in) which guide you in the selection of a particular form of retentive apparatus, and the results you desire to obtain by its adoption. We are here to study Systematic and not Clinical Surgery, but I would have you bear in mind that, when you come in contact with cases of surgical disease and injury, you are not to expect them to fit in accurately as regards their symptoms, diagnosis, or treatment with the description given in your text-books. It will be then, if you have adopted the method of work I would venture to recommend, that you will understand the value of having studied Surgery from a wide and general point of view, for your diagnosis will be scientific, not empirical, and your treatment rational, not routine. Besides, from an examination point of view, which now-a-days pervades the whole work of the student's career, you will find that by cultivating your reasoning and thinking powers, by not taking for granted statements which occur in your text-books; but, by bringing an all-round knowledge to bear upon them, by working them out for yourselves and forming your own estimation of their value—in short, by avoiding cramming, you will not only make the best possible preparation for those necessary evils, examinations, but lay a secure and permanent foundation for your life's work.

III.—INTRODUCTORY ADDRESS.

By CHARLES E. UNDERHILL, M.B., F.R.C.P. Ed.

(Read before the Edinburgh Obstetrical Society, 14th November 1888.)

GENTLEMEN,—My first duty is the pleasant one of thanking you very heartily for the honour you did me this time last year in electing me your President. It is not an easy task to fill worthily the Chair which has been occupied by so many distinguished obstetricians; and I feel this the more because we are just entering upon the fiftieth session of this Society, and if we follow the many precedents which have been set of late, we shall mark in some special way this landmark in our history.

I do not propose on this occasion to ask you to celebrate our jubilee, but some time in the course of the session we hope to take an opportunity of signalizing the fact that our Society has arrived at the mature age of fifty years. Happily there are still some among us who were present and assisted at the birth of this little stranger, and who have watched over its progress and have lived to see it attain its present state of health and vigour.

Now, old though our subject is, and rooted far back in the past, yet it is ever green, putting forth new branches in every direction, and full of a vigorous, lusty life. “Age doth not wither it, nor custom stale its infinite variety.”

For if we glance at the work which was done at our meetings during last session, we see what a wide field was covered, and what excellent work was done in various departments of obstetrics and gynæcology. At our first meeting there was an interesting discussion on a most valuable paper by Dr Hart and the late Dr Carter on the Anatomy of Extrauterine Gestation, when it was conclusively proved, for the first time, that there is a variety of this disease when the foetal sac is situated entirely without the peritoneum, the original Fallopian tubal pregnancy having developed downwards between the folds of the broad ligament, and pushing the peritoneum and its contents above and in front of it.

Another subject of great importance and comparative novelty came before us at a later meeting, when we discussed the anatomy of the third stage of labour, the discussion being founded on elaborate papers by Dr Hart and Dr Barbour. And it strikes one as a singular fact, showing how easy it is to overlook work which lies at our very feet, that though in every case of labour the separation of the membranes and placenta is a source of anxiety to the obstetrician, the investigation of the exact anatomy of this process should not previously have been attempted, and should still remain a matter for discussion.

Further on we had two statistical papers recording successful operations in the domain of gynæcology. The one by Dr Croom

relating fifty consecutive cases of ovariectomy and the removal of uterine appendages, with only one fatal issue; and the other a complete record by Dr Brewis of twelve cases of removal of the uterine appendages, all of whom recovered, while the operations were in other respects, with one exception, entirely successful.

At another meeting we had an opportunity of discussing an important practical subject of the course and management of labour complicated with mitral stenosis, the matter being brought before us in two interesting papers by Dr Hart and Dr Ballantyne, the former dealing more with the practical aspect of the subject, the latter showing us a valuable and interesting series of sphygmographic tracings, which showed in a very graphic way the dangerous effects which the throes of labour produce upon the already damaged heart.

We have to thank Dr Matthews Duncan for calling our attention, in an able and exhaustive paper, to the evil influence exercised by alcoholism on gynæcology and obstetrics, a subject with which, in some of its details, most of us are familiar, but which yet requires much patient observation and research, and Dr Duncan's paper should serve as a useful stimulus towards the more thorough elucidation of the subject.

Among other papers of interest was a learned inquiry by Dr Barbour into the early contributions of anatomy to gynæcology and obstetrics, in which he traced the slow and gradual development of our knowledge of the anatomy of the female generative organs from the dawn of Medicine up to the publication of the great work of William Hunter; and it was curious to note what a large proportion of this knowledge is due to the labours of Scotchmen.

To Dr Foulis we are indebted for a long and elaborate exposition of the cause of head presentations, and particularly of first cranial positions, in which he put forward a new view, founded on considerations relating to the position and mobility of the liver.

In addition to these we had many other papers, some of scientific, some of practical interest; one in which both these interests were combined, by our late president Dr Halliday Croom, who brought before us an interesting contribution to the anatomy and clinical history of incarceration of the retroflected gravid uterus.

We had, moreover, one discussion on the ever-fruitful topic of puerperal fever, in opening which I adduced some cases showing, as I thought, that danger may arise to puerperal women from the atmosphere of the house in which they are confined being poisoned not only by foul emanations from drains, but also by septic influences from chronic pyæmia and malignant disease.

At the last meeting of the session Dr Milne Murray gave us a valuable demonstration of the action of galvanic currents on the tissues, showing us clearly the different effects produced at the

positive and negative poles respectively. He pointed out and demonstrated the important fact, that when the positive pole was inserted into a living or lately dead piece of tissue, the structures immediately surrounding the needle were charred, and the general effect was an acid reaction and a constriction or contraction round the needle—this action being confined within a very limited area. When, on the other hand, the negative pole was inserted within the tissue, the effect produced was much more widely spread, the surrounding tissues were loosened and injured, but not immediately destroyed, the reaction at the point of insertion was alkaline, there was a considerable discharge of alkaline fluid, and the hold on the needle was slack and loose. In a word, the electricity at the positive pole killed a very limited amount of tissue immediately, the negative maimed and rendered liable to slough a much more extensive mass of tissue. These observations may help to explain the different effects produced by the employment of electricity in the hands of different persons, and to caution us as to some of the risks which are incurred in the use of strong currents, unless they are guided and controlled by an adequate knowledge of electrical science as well as competent ideas on the pathology of the female generative organs.

And this question of the value of electrical currents as applied to gynæcological practice is one of those points which is at this moment awaiting solution. Are we to look upon it as a great advance in our art, a commanding addition to our powers in dealing with disease, and worthy of the names which support it; or will it have its day and pass away, like so many more of the fashions which have at times prevailed in the history of Medicine, leaving its wreck to float into some back-water while the stream of knowledge flows relentlessly past it? It may be said that electricity was tried, and failed to come into use years ago. That is so, but there are some considerations which lead one to expect a different issue now. That electricity is a powerful agent for good or for evil none can deny: it is powerful just as all medicinal agents which are of any avail are powerful—poisonous if we don't use them aright; dangerous if the dose be too large, or if they be wrongly applied; but capable, in skilled hands and in proper doses, of effecting great and beneficial results.

Moreover, we must not forget that the sciences are advancing, and none more than electrical science; there is more exactness in its methods and appliances, its force is more accurately measured and controlled, and its physiological effects are more clearly defined. The electricity of to-day differs almost as much from that of twenty years ago as the steam-hammer in its time surpassed and overthrew the cumbrous and unwieldy sledge-hammer of the iron foundry.

And while the science of electricity has been advancing in all directions since it was last applied on any large scale to gynæco-

logical purposes, our knowledge of the physiology and pathology of the diseases of women has not stood still. But the advance in the practice of our art has been largely in the direction of Surgery: the abolition of tapping from the treatment of ovarian tumours and the substitution of early removal of them; the removal of the ovaries in certain cases of uterine fibroids; the removal of the uterine appendages for disease; immediate operation in the case of ruptured tubal pregnancy; the operation of Emmett for torn cervix, are all instances of the abiding energy of our surgical operators. These operations have all established themselves as recognised procedures, though not all of them to the extent which their originators demanded.

But when we come to such procedures as removal of the entire uterus for cancer, or still more hysterectomy in the case of bleeding fibroids, we must call a halt. Here we have the crucial question, Is the disease in itself so deadly that it justifies the extreme risk which is incurred in the operation in the hands of the majority of surgeons; and are we not justified in looking elsewhere for a substitute less dangerous, even though it be somewhat less effectual? It is here, of course, that electricity steps in, and promises us in many cases a safe and speedy cure; in all cases relief, with no great element of danger. I have had no personal experience myself in the application of the agent for this purpose, though I have seen cases in which it has been used; but for my part, I look forward with hope to the time when its true value shall have been gauged, its limitations ascertained, and its dangers—for there are undoubtedly dangers in its incautious and reckless use—have been duly defined. I believe we shall find it a valuable and efficient agent in our work, and in cases mostly where medical and so-called expectant treatment is of no avail, and where the relief offered by Surgery promises to be purchased at too hazardous a rate. Recent observations, too, seem to show a further use for this agent, and to make it probable that the effects produced by a continuous current on the nutrition of parts may be made available for soothing the pain, and softening down and removing these inflammatory lumps and adhesions within the pelvis which are at present the bane of many of our patients and almost the despair of the physician.

These anticipations are, as you know, still *in nubibus*. The results achieved by different observers are still sufficiently discordant, as a glance at the recent debate in the London Obstetrical Society will show. I don't allude to the remarks of those who, like myself, have not tried it, or who tried it years ago, and gave it up in despair, but of those who possess the two essential requisites for success—those, that is, who have made themselves sufficiently acquainted with the methods and manipulations of electrical science, and possess in addition an adequate knowledge of gynaecological medicine. If either of these requisites be want-

ing, the attempt is a one-sided one, and cannot be expected to succeed.

There is at least this much to be said for the prospects of the present development of the application of electricity to Medicine, that the reception accorded to it resembles that of one of the lasting gains of medical science rather than one of the passing fashions of the day.

For the changes and improvements which make up the history of medical progress may be divided into two classes—the one, the fashions of theory or of practice, which succeed one another with more or less regularity, and leaving something of gain behind them, are eventually lost sight of on the advent of something newer or more taking; in the other class are the great advances of medical science, which remain for ever as part of the great inheritance which we have received from our predecessors, and which are the essential landmarks of our progress. Now, the reception which these two classes have met with respectively at the hands of the profession and the public may be looked upon as an indication of their value. To take the former class—the passing fashions—first. From the natural tendency of all of us to be influenced by novelty, new methods of treatment, such as I refer to, have always a fascination, partly due to their novelty, partly to the want of success in the other methods; for life is short, and Medicine is not an exact science, and sooner or later every one of us will furnish an unsuccessful case for a physician. But from whatever cause, any new departure which promises great things, especially if it is easy to do and lucrative in its results, is sure to be received with avidity: it is practised everywhere, in season and out of season, in proper cases and in improper cases. It then becomes reduced to a rule of thumb; the successes that were promised so liberally are found to occur but seldom; the good, if there be any good in it, becomes sharply defined and is retained; but the excess has disappeared, the fashion is past, and the method all but abandoned.

Such is the history of many a passing fashion in medical theory and practice; and our own department has had its full share of them. There were the days of speculum and caustic, where every disease a woman could suffer under was ascribed to inflammation or ulceration of the womb, and treated accordingly. Still later, evils of the most portentous kind were believed to arise from deviations from the normal position of the womb, and whole armaments of pessaries of every shape and size were invented, and whole armies of martyrs suffered from their use. What was good and useful in these practices remains with us; the rest has gone the way of all excesses. These and such like are the passing fashions, and they might be multiplied a hundred-fold in all departments of Medicine; and one of their most distinguishing features is the readiness and applause with which they had been at first received and adopted.

On the other hand, we find it to be almost the rule that the great discoveries, which were destined to exercise the widest influence on the science and practice of Medicine, have been received on their first publication with ridicule, abuse, and every form of opposition. When Harvey first put forth to the world his views on the circulation of the blood, he was almost universally condemned, and had to submit to a storm of obloquy which injured his health, and for a time almost annihilated his practice. A similar reception assailed the first efforts of Vesalius to throw off the yoke of centuries and all the weight which the authority of Galen and the ancients had lent to the utterly erroneous views on anatomy which had been current so long; and it was only the patient labour for years of himself and his disciples, which were at last received with general assent, as the true beginning of an accurate anatomy. Again, with what opprobrium and laughter was the priceless discovery of Jenner received on its first promulgation; what a battle had to be fought against the beliefs and prejudices of the public and the profession, before it was recognised as one of the most potent and beneficent weapons ever added to the armoury of the physician! The history of the introduction of chloroform, or, still later, of the application of the antiseptic theory to practical medicine, surgery, and obstetrics, are but other instances—and there are plenty more—of the difficulty with which great ideas win their way into the ranks of received and accepted practices, and the slow progress which marks their earlier course. And this is more marked, it seems to me, if these new discoveries or theories happen to start from a scientific basis. Men are, or shall I say used to be, so apt to look upon any practical outcome of scientific observation with distrust, as savouring of the theoretical and visionary, and upon science itself as an unsafe guide in dealing with the wants and miseries of everyday life.

And yet, from the first dawn of the revival of learning to the present time, Medicine has, in all its branches, followed in the footsteps of general science, advancing only with its advances, often lagging behind, never one hand's-breadth in front, and very often running away with physical science and applying it to purposes which it could not further, and asking it for explanations which it was not by the nature of things able to give. Take an illustration of my meaning. The first sciences to start into life when the sun of knowledge began to penetrate the gloom of the Dark Ages, were Physics and Mathematics; Medicine at once followed suit, with physical and mechanical explanations of the phenomena of the living body. The application of the principles of mechanics to the education of muscular action and muscular motion, truly mechanical phenomena, were just and appropriate uses of the science; but not content with that, Bellini and his followers extended their reasonings to all the functions and processes of the body in health and disease. The body was

simply regarded as a machine irrigated by a system of tubes, and these were measured and calculations formed of their diameters, of the frictions and retardations due to the passage of fluid along them, of the size of the particles and pores; and the whole system was regarded by these Iatro-mathematicians as governed by the then known laws of mechanics.

Chemistry, again, which in the hands of the alchemists had lived a precarious and inconspicuous life through the centuries of darkness, had no sooner shaken off the traditions of the past and entered upon its true career as a science, than its influence at once reacted upon Medicine. New theories of vital action in health and disease, based upon chemical reactions, at once came into vogue, notably the view held by Willis and Sylvius, that all the phenomena of health and disease depended on various fermentations, which took place in the blood and other fluids and solids; and that each organ and fluid had its own particular ferments, and that a morbid state of these ferments was the cause of all diseases, and upon these views was based the medical practice of the day. Indeed, step by step the advances and discoveries of the chemist have been followed and utilized by the anatomist, the physiologist, and the physician. How much do we not owe to the simple discovery of the composition of the atmosphere, with all the momentous consequences which have flowed from it, to physiology of respiration and the practice of Medicine! And from the day of that discovery to this, new compounds, new salts, new alkaloids, new products of synthesis in the laboratory have been continually added to our armoury, to say nothing of what the practice of Medicine owes, through the medium of physiology and pharmacology, to the light which chemical science has thrown on the constitution of every tissue and fluid and solid in the human body.

I need not remind you how botanical science has given us new drugs, and therapeutics has shown us how to use them; and I say nothing of our debt to anatomy and physiology, because they are part and parcel of the science of Medicine, which, without their guidance is, and always has been, little better than a series of guesses, like shooting at a mark in the darkness, an arrow now and again hit the mark, but the great majority went far astray.

In fact, the whole of medical practice from beginning to end rests upon the foundation of the other sciences: physics and mathematics form the broad basis; chemistry, anatomy, physiology, and botany form tiers in the structure; and if we could at this time of day remove entirely any one of these, the whole structure would come crumbling about our ears.

And if Medicine in general owes everything to science, obstetrics in particular is not behindhand in acknowledging its share of the obligation. From the simple mechanical principles which underlie the construction of the pelvis and direct our conduct in the

management of labour, up to the latest advances of biology—that greatest of all sciences, because it embraces them all—there is none which we do not draw upon in some way or other. Indeed, as has been often said, but it cannot be repeated too often, the greatest advance in the obstetrics of our time, or perhaps of any time—I refer, of course, to the application of the principles of antiseptics to the practice of midwifery—is the direct outcome of the researches in the domains of biological science of two men, Pasteur and Lister, men who never practised midwifery in their lives: “other men have laboured, and we have entered into their labours.”

But it is time I was drawing these desultory remarks to a close. I have strayed a long way from the consideration of the question, now so prominent, of the application of electricity to practical gynæcology; but I would say in conclusion, that the caution and scepticism, and in some hands the ridicule, with which these practices have been received, is to my mind an argument in their favour; because, as a matter of general experience in Medicine, those so-called advances which have been received on their first promulgation with the greatest enthusiasm, and have been practised with the greatest energy, have too often been found in the long run to be of little real value, and have eventually fallen into merited oblivion. They have gone up like the rocket and come down like the stick. Nothing of real greatness and utility can come in Medicine, or anywhere else, without time and labour, and the healthful, strengthening influence of free discussion and plenty of abuse.

IV.—ON THE SPONTANEOUS EXTRUSION OF SEQUESTRA.

By ARTHUR NEVE, F.R.C.S. Ed.

ON page 214 (vol. ii., second edition) of the late Professor Spence's *Lectures on Surgery*, there is an excellent plate showing the natural extrusion of the necrosed diaphysis of a tibia *thirty years* after the occurrence of the necrosis.

I draw attention to it, partly because Professor Spence's views on the subject of necrosis and his clinical insight appear to me far ahead of anything in modern surgical literature, partly as having seen similar cases which are very noteworthy.

The coloured illustration in question is an almost exact portrait of a case seen recently by me, which had, however, arrived at the same stage very quickly.

N., a girl aged 10, had been ill only three months. On 20th May she was brought to the Hospital with a fragment of dead bone projecting from the skin in the upper third of the shin. There was considerable thickening of the limb, and lower down a sinus communicating with the lower end of the sequestrum.

Without giving any anæsthetic, a fragment of bone 6 inches long, representing the whole anterior surface of the diaphysis of the tibia, was forcibly withdrawn. Behind, the limb was strongly but not rigidly splinted by new bone, which also enveloped two-thirds of the sequestrum. Ten days later, merely a small sinus was left, which finally closed by the seventeenth day, and the patient left hospital.

A similar case was even then under treatment, but with necrosis of the ulna. Six weeks after commencement of the disease, the young child was brought with the olecranon process protruding through a wound in the elbow. With slight enlargement of the wound the whole ulna, less the distal epiphysis, but with the olecranon and coronoid processes quite intact, was withdrawn.¹ In a few days the cavity was nearly closed, and a new bone was being formed. The elbow-joint seemed in no way affected.

The other case I will quote may appear dissimilar, but in it the process of spontaneous extrusion is even more admirably displayed.

A lad of about 14, now in the wards, was first seen by me four years ago. He then had central necrosis of the tibia and the humerus, the former extensive. I resected a considerable portion of the tibia with a good result, but merely gouged the humerus superficially. A year later, he returned for treatment of the sinus in his arm. The probe entered a small cloaca in the thickened, ivory-like bone, behind which there evidently lay a spicule of sequestrum. I judged it better to leave this to the natural process of absorption or disintegration than to have to gouge freely, with some risk of fracturing the dense, not very thick, but possibly brittle shaft.

Ten days ago he again presented himself. The old sinus is present, but no longer leads to dense new bone. This has disappeared on the upper side, and a sequestrum is now superficial. I incise freely, chiselling off a small overlapping margin of eburnated new bone. The sequestrum proves to be tubular, being, as it were, the former shell of the medulla. Below this point the bone is solid; there is no medullary cavity. The sequestrum had been lifted, or rather tilted out of its bed, so that the point presented at the cloaca. If this process had gone on in the same way and at the same rate, in two years or less the sequestrum might have spontaneously escaped.

I have seen a considerable number of cases in which sequestra of considerable size, even in some cases the whole shaft of a bone, required no operation for their extraction beyond traction with forceps. Among such I recall four or five tibiæ, two fibulæ, two radii, and one ulna. The deeper seated bones, such as the femur

¹ Why epiphyseal separation of the tip of the olecranon did not occur, and how the separation of the articular surface did occur without synovial mischief, is a doubtful and interesting question, but irrelevant to this paper.

and humerus, are seldom thus spontaneously extruded. A glance at the larger specimens so removed shows the general tendency to a wedge shape with an acute angle. It is obvious that a sharp sequestrum, if the point be directed against a non-osseous surface, possesses great mechanical advantages, and these are increased by having a blunt, flattened base on which granulations can exercise steady, though gentle pressure.

The following points in the process of necrosis, as well as the shape of spontaneously expelled sequestra, throw some light on the method of expulsion:—

The periosteum does not always or usually form a complete case around or over a sequestrum. Where the suppuration is greatest the osseous formation is least, so that the aperture by which discharge takes place is to some extent free from such formation; and sometimes it is absent from a considerable extent of surface. In such the soft parts can offer no prolonged resistance to the constant pressure of the sequestrum.

In others, and as a rule, the sequestrum becomes incarcerated in a bony case with one or more openings. If these openings correspond to the extremity of the sequestrum, it may, if small, escape easily; but if to the centre, obviously its escape may be postponed *sine die*. I have seen such a case of twenty years' duration. In others, however, the sequestrum, if not disintegrated, finally floats to the surface. By what force? Muscular? Not directly, for there are never any muscular attachments to a sequestrum. The chief force appears to be that of the sprouting ossifying bed of granulations. To these the bone owes its enlargement. This enlargement is most in the direction of least resistance—that is, in most cases towards the nearest skin surface. On the other side the bone is supported and pressed on by muscular structures.

Further, this skin surface is weakened and undermined by supuration. Sometimes, however, the new case, one of ivory hardness, encloses the sequestrum. This, however, by pressure is reabsorbed, just as an aneurism causes absorption of bone with which it is in contact. In the case given above this occurred. The process of absorption required years, but it progressed steadily; so also in the case quoted by Mr Spence.

In many of these cases, however, the protrusion is determined by external forces. There is not only the pushing force of the granulations, and perhaps a gradual action of the current of pus, setting towards the sinus; but the action of gravity on the sequestrum itself, or the weight of the body as in progression or in falling, may act on the sequestrum, driving it out through the skin.

In the first case there was a combined action, granulations tilting the point of the sequestrum forwards, and the weight of the body in walking driving it upwards; thus it came to protrude

for some distance beyond the surface. In the last case we have the same tilting power assisted by the force of gravity, the sequestrum making its way outwards and downwards.

In this light even the failure of osteogenetic action in the periosteum, the burrowing of pus, and ulceration of the skin, may be regarded as adjuncts to the process of extrusion of the sequestrum, a process which, it is needless to say, should seldom or never be left to Nature to perform, but which, as the cases quoted and many others I have seen show, even unassisted Nature can sometimes perform *à merveille*.

V.—THE SYSTEMATIC EXAMINATION OF THE URINE FOR PROTEIDS, WITH A SIMPLE METHOD FOR THE QUANTITATIVE DETERMINATION OF SERUM ALBUMIN AND SERUM GLOBULIN.

By D. NÖEL PATON, M.D., F.R.C.P.E., F.R.S.E., B.Sc., Lecturer on Physiology, Edinburgh School of Medicine, Surgeons' Hall.

ALTHOUGH the importance of the presence of proteid matters, or, as they are generally called, albumins in the urine, has for long been recognised as a valuable clinical sign, it is only now that we are beginning to appreciate the possible importance in diagnosis of a detailed examination into their nature. Hitherto the difficult and tedious methods employed in such investigations have deterred medical men from undertaking the extensive series of investigations upon which alone any practical conclusions can be based. The researches of Senator (*Virchow's Arch.*, Bd. 60, s. 476), published in 1874, and the more recent observations of Maguire (*Lancet*, vol. i., 1886, pp. 1062–1106) in regard to the relative proportions of the two most important of these proteids—serum albumin and serum globulin—indicate very clearly the probable value of such careful examination in the differentiation of the various forms of albuminuria.

Being strongly impressed by the importance of these methods of investigation, I have been in the habit of teaching the students of physiology at Surgeons' Hall a systematic and simple procedure by which a qualitative examination of the urine for these bodies may be rapidly carried out; and, at the same time, of demonstrating to them an easy method for the quantitative determination of the two most important of these bodies.

As is well known, the proteids which most commonly occur in the urine are serum albumin and serum globulin—the two great proteids of the blood serum. In addition to these, peptones and albumoses—(a series of bodies formed as intermediate stages in gastric digestion between the proteids of the food and peptones)—also sometimes occur. It is needless here to refer to the rarer

proteid bodies which have from time to time been described as appearing in the urine.

To differentiate these various proteids, the method of procedure is as follows:—

The urine is in the usual way slightly acidulated with acetic acid and boiled; if a precipitate forms, the presence of serum albumin and serum globulin, or of one of these, is indicated.

The fluid with the precipitate is now thrown on a small filter-paper and allowed to filter into another test-tube. The filtrate is then examined for albumoses and peptones. If no precipitate is got on boiling the original urine, it is immediately examined for these bodies without previous filtration.

The filtrate or the clear urine is treated in the ordinary manner with cold nitric acid (Heller's test), when, if an albumose is present, a white ring appears at the junction of the urine with the acid. Or their presence may be demonstrated by treating with acetic acid and ferrocyanide of potassium, with which they give a white precipitate.

It is well known that the chief albumose is precipitated at a temperature of 60°-65° C., but is redissolved on heating to a higher temperature; and this fact occasionally causes some little confusion to the physician unacquainted with the reactions of this body. For the differentiation of the various albumoses which may appear in the urine, the reader is referred to a paper by Dr Martin (*Brit. Med. Jour.*, 21st April 1888). Their clinical significance is yet little understood, though undoubtedly they occur in other cases than in those affected with osteo-malacia, in connexion with which disease their presence was first described by Bence Jones.

If no albumose is present in the urine, an examination is made for peptones. If albumose is present, it must be separated as follows:—

To some of the original urine in a test-tube powdered sulphate of ammonia is added till a saturated solution is produced, when all proteids but peptones are precipitated and may be separated by filtration, and the filtrate tested for peptones. This may be readily done by means of Dr Johnston's picric acid test. Johnston's picric acid paper may be used, or the well-known Esbach's solution of picric and citric acid may be employed. If peptones are present a clouding is produced, which disappears on boiling, but returns on cooling. I find this a more satisfactory test than the method of pouring a layer of Fehling's solution under the urine and watching for the biuret reaction.

But we have still to distinguish between serum albumin and serum globulin, both of which are precipitated on boiling the original acidulated urine. In most cases the precipitate is a mixture of both of these proteids, as was first indicated by Lehmann (Virchow's *Arch.*, Bd. 36, s. 125) and afterwards by Senator (*loc. cit.*), and by Edlefsen (*Deutsch. Arch. f. klin. Med.*, 1870, s. 67).

The presence of globulin may be demonstrated by rendering the urine faintly alkaline with a drop or so of liq. potassæ, and then pouring down the side of the test-tube a saturated solution of sulphate of magnesium, when a white ring appears at the junction of the two fluids. The urine must not be acid, otherwise serum albumin as well as serum globulin is precipitated. By saturating the alkalized urine with sulphate of magnesium, all the globulin may be precipitated, as was shown by Hammersten (Pflüger's *Archiv*, Bd. 17 and 18); and if we filter and acidify the filtrate, we get either without or with boiling a precipitate of serum albumin when this is present.

By comparing the density of the precipitate got on boiling the original urine with that got on boiling this filtrate, we may form a rough judgment in regard to the amount of globulin which has been removed by the sulphate of magnesium, and in this way upon the relative amounts of the two proteids. But the method is so rough as to be worthless.

I have already referred to Senator's series of observations on the relative amounts of serum albumin and serum globulin—para-globulin as he calls it—in the urine in different forms of Bright's disease. His method of observation was by no means satisfactory, depending as it did upon the separation of the serum globulin by diluting the urine, and passing through it a stream of carbonic acid. But from these observations he was able to conclude that "In every urine which contains coagulable albumin, (para) globulin¹ may be detected as well as serum albumin, and the amount of this is not dependent only upon the total amount of albumin, but may differ according to the different states of the diseased kidney. So far as the few observations allow a conclusion to be drawn, it appears that the amyloid degeneration may be distinguished from chronic renal disease by the richness of the urine in para-globulin."

Maguire (*loc. cit.*), using a more satisfactory method for the separation of the para-globulin, namely, by means of sulphate of magnesium, and determining the amount of each proteid by the dilution method—a not altogether satisfactory process—concludes from a few observations that in functional albuminuria the globulin is in excess of the serum albumin, while in granular kidney the reverse is the case. In one case of albuminuria of pregnancy para-globulin was the only proteid present.

Certain physiological observations would further lead us to believe that a variation in the relative amounts of albumin and globulin in the urine might occur as the result of physiological variations in the condition of the animal. Burekhardt (*Arch. f. exp. Pathol. u. Pharmac.*, Bd. 16, s. 322) has shown that in the

¹ The various names given to serum globulin are very confusing. It has been variously termed serum globulin, para-globulin, and fibrinoplastin.

condition of starvation the globulin of the blood serum greatly increases in amount.

Hence it becomes a matter of considerable interest and importance to endeavour to obtain a ready and fairly accurate method for the quantitative determination of these two proteids.

The value of Esbach's method of albuminometry is universally recognised by physicians. It has now stood the test of several years' use, and is admitted to combine the advantages of great accuracy with great facility. It is so well known as to need no description.

The following notes, taken from my experiment-book, will give some idea of the limits of error of the method.

27th Oct.—Three tubes were put up with specimens of the same urine at 3 P.M. Read off at 3 P.M. on the 28th, they gave—*a.* 1, *b.* 1·2, *c.* 1·2; average, 1·13—*i.e.*, 1·13 per mille. of proteids, or 0·13 per cent.

The proteids in two samples of the same urine were estimated by the usual gravimetric method.

A = 0·106 per cent.

B = 0·111 per cent.

Average = 0·108.

As against 0·113 by Esbach's method.

Below will be found other experiments affording comparison of the two methods.

I have adapted this process to the determination of the amounts of serum albumin and serum globulin. The method of procedure is as follows:—

The total proteids of the urine, which may in most cases be taken as composed of these two substances, are determined by Esbach's method.

Fifty ccm. of the urine are now taken in a flask and rendered faintly alkaline with a drop or two of liq. potassæ. Sulphate of magnesium in powder is then added—the flask being frequently shaken—till a completely saturated solution is produced, and this is allowed to stand in a warm place for twenty-four hours. In this way the globulin is completely precipitated.

The solution is then measured and filtered, and an Esbach's tube is filled up to the mark with the filtrate, and the picric acid solution added in the usual way, when, of course, the serum albumin, which has not been precipitated by the sulphate of magnesium, is thrown down, and its amount may be read off. Knowing the dilution of the fluid caused by the addition of the sulphate of magnesium, its percentage amount in the urine may be easily calculated. I find it a good plan to put up two or three Esbach's tubes for each determination, and to take the mean of these. In this way greater accuracy is insured.

On account of the high specific gravity of the fluid, the precipi-

tate does not fall readily. Frequently it tends to float upon the surface of the fluid, but by judiciously shaking the tube its deposition may be determined. I find, however, that five days should be allowed to elapse before the reading is made. This is due to the influence of the high specific gravity of the fluid, as is shown by the following experiment:—

Of a fluid from which the globulin had been separated by saturation with magnesium sulphate and filtration, three portions of 5 ccm. each were taken. The first portion, A, was diluted to 25 ccm. with a saturated solution of magnesium sulphate; the second portion, B, was diluted with 15 ccm. of saturated solution of magnesium sulphate and 5 ccm. of water; while the third portion, C, was diluted to 25 ccm. with water.

A sample of each of these was placed in an Esbach's tube, and picric acid solution was added.

The following Table shows the time taken in the completion of the process of deposition:—

Days.	Hours.	A.	B.	C.
14.8.88.	11 A.M.	—	—	—
15 „ „	4 P.M.	Above 7.	Above 7.	2.5.
16 „ „	12.	3.	2.5.	2.
17 „ „	12.	2.2.	2.2.	2.
18 „ „	12.	2.	2.	2.
19 „ „	12.	2.	2.	2.

The specific gravity of these fluids was determined with the picnometer with the following results:—

$$A = 1154$$

$$B = 1070$$

$$C = 1010$$

The results are got as follows:—

The Esbach's tube with the original urine at the end of twenty-four hours gives us the total amount of proteids in grms. per litre.

The Esbach's tube containing the filtrate gives us, at the end of five days, the amount of serum albumin in grms. per litre, so by subtracting the second from the first we find the serum globulin in grms. per litre.

I have checked this method by the following series of observations:—

Observation I.—An ascitic fluid, opalescent and somewhat turbid, was filtered and diluted to ten times its volume.

The total proteids were estimated by Esbach's method and by the ordinary gravimetric method.

$$\text{Esbach} = \cdot 22 \text{ per cent.} \quad \text{Gravimetric} = \cdot 215 \text{ per cent.}$$

50 ccm. of the fluid were saturated with magnesium sulphate and allowed to stand for twenty-four hours. The solution was then

filtered and the serum albumin was estimated in the filtrate by Esbach's method and gravimetrically.

Esbach = ·10. Gravimetric = ·09.

The globulin was determined by difference.

Esbach = ·12. Gravimetric = ·1234.

Observation II.—An albuminous urine was used, and the investigation was conducted in the same manner.

Total proteids.

Esbach, ·32. Gravimetric ·34.

Serum albumin.

Esbach = ·225. Gravimetric = ·248.

Serum globulin (by difference).

Esbach = ·095. Gravimetric = ·092.

Observation III.—Albuminous urine.

Total proteids.

Esbach ·29.

Serum albumin.

Esbach, ·18 Gravimetric, ·15.

Serum globulin (by difference).

Esbach, ·11. Gravimetric, ·14.

We thus see that by this method we have a rapid and fairly accurate means of estimating quantitatively the two chief albuminous constituents of urine.

Hitherto, the tedious nature of the gravimetric method has deterred physicians from undertaking any accurate series of observations on a point which should yield results of great practical value. Observations on this subject are now in progress in my laboratory, and already results of interest are being obtained.

VI.—CASE OF TRAUMATIC GANGRENE OF PENIS AND SCROTUM.

By WILLIAM FERGUSON, M.D., Surgeon to Chalmers's Hospital, Banff, etc.

ON Monday, 25th June 1888, J. S., farm-servant, in the enjoyment of robust health, was engaged removing a wheel from a cart, when a *rusty* staple which happened to be in his left trouser pocket punctured that side of his penis. He felt little or no pain until one hour afterwards, during which time he had been standing up to his knees in water washing carts.

He now went home to dinner. On returning to work after dinner he felt sick, shivered, pained in the penis, and, being unable to work, went to bed. On Tuesday, at noon, he was seen by my friend Dr M'Arthur of Gardenston. At his visit the penis was a good deal swollen, and had a bruised appearance; he was now suffering great pain in the penis. Dr M'Arthur incised the penis

on the left side, which considerably relieved the pain. About one hour after Dr M'Arthur's visit his scrotum began to swell. Dr M'Arthur saw him again the following night (Wednesday) about midnight, when he found him very ill. Temperature, $103^{\circ}6$ F.; pulse, 140, very weak; the greater part of the penis and scrotum evidently becoming gangrenous; a good deal of pain in the groins and lower part of abdomen; the lymphatics in groins inflamed and of an erysipelatous appearance over the lower half of the abdomen. Dr M'Arthur ordered brandy to be given him frequently through the night, and poultices to be applied; the latter, however, increased the pain, and were not persevered in. The following forenoon (Thursday), about 11 A.M., I saw him along with Dr M'Arthur. His condition was then considerably improved. Temperature, $100^{\circ}5$ F.; pulse, 116; the greater part of penis and the whole of the scrotum of a dark purple colour; groins and lower part of abdomen erysipelatous. We ordered his removal to Chalmers's Hospital, Banff, whither he was conveyed in a long spring-cart the same afternoon. He stood the journey of six miles well, having brandy administered at frequent intervals.

Soon after admission he was placed in a warm sitz bath, which gave him great relief. While in the bath he had a large teaspoonful of brandy every half-hour. The baths were continued for four days, three times a day, for from one hour to two hours and a quarter, the longest time he was in one on end. The temperature of the bath was kept at about 100° F. He had scruple doses of sulpho-carbolate of soda every three hours, plenty of brandy, Brand's extract of meat, milk, etc. The sloughs began to separate on the third day after admission, and by the close of the fifth day the whole had separated, leaving both testicles entirely denuded, and about two-thirds of the superficial tissues of the penis, chiefly on the upper aspect, including the entire prepuce, gone. During the time he was not in the bath the parts were covered with carbolized tow. After the separation of the sloughs, the raw surfaces were dressed with carbolic oil.

After admission to Hospital his temperature never rose above 100° F., and never above normal after the evening of the fifth day. He never had any difficulty in passing urine. The parts gradually cicatrized until, on his discharge on 8th August, the penis was quite skinned over, and only a small piece about the size of a shilling remained in the perineum to cicatrize. His testicles were drawn up into the groins. Curiously enough, the gangrene of the penis and scrotum were not continuous, there being an entire ring of healthy tissue, about half an inch broad at its broadest part, round the root of the penis.

For the notes of the case up to my visit in consultation I am indebted to Dr M'Arthur. The rarity and comparative insignificance of the injury causing the gangrene are my reason for considering the above case worth while recording.

VII.—ABSTRACT OF PAPER ON SOME UNDESCRIBED RESPIRATORY NEUROSES: THEIR CLINICAL AND PHYSIOLOGICAL ASPECTS.¹

By ANDREW SMART, M.D., F.R.C.P., ED.

I.—VASO-MOTOR NEUROSES = SPASM.

- | | | |
|------|----------------------------|-------------------------------|
| A. { | Respiratory Centre. | { Accelerated Breathing. |
| B. { | Cardiac Inhibitory Centre. | { Accelerated Cardiac Action. |

II.—INSPIRATORY NEUROSES.

Combined Neurosis of Vagi, Phrenic Nerves, and Upper Cerebral Respiratory Tracts.

- | | | | |
|------|--------------------------|--|---|
| A. { | Arhythmical Respiration. | { Diaphragm Spasm. | { Interrupted and variously modified respiration. |
| B. { | Suspended Respiration. | { Diaphragm Tetanus, with or without general respiratory muscular spasm. | { Arrested respiration in the position of complete inspiration. |

III.—EXPIRATORY NEUROSES.

Superior Laryngeal, Olfactory, and Trigeminal Nerves.

- | | | |
|--|--|-----------------------|
| Successive Expiratory Explosive Efforts. | { Expiratory Spasm in the position of complete expiration. | Suffocative dyspnoea. |
|--|--|-----------------------|

IV.—RESPIRATORY DYSPHAGIA.

Glosso-pharyngeal Neurosis.

- | | | |
|------|--|--|
| A. { | Abnormally suspended Breathing during Deglutition. | { Deglutition Dyspnoea. |
| B. { | Abnormally accelerated breathing during Deglutition. | { Choking Deglutition, and general Dysphagic Distress. |

V.—MULTIPLE COMPLEX RESPIRATORY NEUROSES.

- | | |
|------|------------------------------|
| A. { | "Cerebral Respiration." |
| B. { | "Cheyne-Stokes Respiration." |

The above abnormal conditions of respiration have not, with the exception of the "cerebral" and "Cheyne-Stokes,"—the statements regarding which are partly founded upon misconception of their true nature,—been previously described.

The results, obtained by clinical methods only, are compared with recent physiological experimental research, and their agreement or differences pointed out.

The communication is accompanied by respiratory tracings and drawings of the various neuroses referred to.

¹ Communicated to the Royal Medical Society of Edinburgh on the 10th February 1888; also to the Medico-Chirurgical Society of Edinburgh on the 2nd May 1888; and, in its completed form, to the British Medical Association at its annual meeting held in Glasgow in August 1888.

The function of respiration undergoes remarkable changes when the nerves which regulate it become disordered from any cause, or when their normal activity is in any way interfered with. The first case referred to was that of spasm brought on by slight emotional disturbances. The spasm lasted 50 seconds, and in that space the patient breathed 132 times, whilst during the same interval the heart registered 212 pulsations. This case was only one of a group which Dr Smart cited to illustrate the effects resulting from vaso-motor spasm of a particular seat of the brain. Referring next to a second class, it was explained that the vagus and the phrenic nerves (the two chief nerves of breathing), from their combined control of the entire respiratory movements, were the prolific source of many and sometimes grave disorders, not only of breathing, but of the respiratory muscles, implicating sometimes all the other muscles in general convulsive spasm and suspension of breathing for a time. This mode of disturbance he describes as "inspiratory neurosis," inasmuch as, when these nerves were so excited, respiration was always stopped in the position of full inspiration. The third disorder referred to was that of the nerve of expiration. Irritation of this nerve or its centre excited persistent cough, going on until spasm and threatened suffocation were imminent. This condition as a symptom was characteristic of a number of maladies, especially of whooping-cough, which Dr Smart said might be viewed as a disordered state of that nerve. A fourth respiratory neurosis was described under the designation of "respiratory dysphagia," connected with the function of swallowing. It was explained that it had been definitely ascertained that there was a nerve whose function it was to stop breathing during the act of swallowing, and interference with that action caused difficulty of breathing during meals. The troubles were of different kinds, which were fully described according to the nature of the disorder of the nerve. Dr Smart concluded by referring to "cerebral" and Cheyne-Stokes breathing, the only two modes of abnormal respiration which have been described and figured by respiratory drawings. He showed, by means of respiratory tracings, that the former was misconceived and wrongly interpreted as a sign of disease, and that it was generally confused with that of Cheyne-Stokes respiration. The latter, Dr Smart remarked, was characterized by rhythmical periodicity, a difference of great significance absent in the other, which is a continuous respiration. He considered the occurrence of Cheyne-Stokes breathing of the true periodic type as a sign of the gravest import. He furthermore believes that the stoppage of the periodic character of the breathing is brought about by the stimulation of a distinct centre of respiratory inhibition. Dr Smart's paper was copiously illustrated by drawings and respiratory tracings.

VIII.—REMARKS ON CERTAIN VASO-MOTOR NEUROSES.

DELIVERED IN CONNEXION WITH THE EDINBURGH POST-GRADUATE LECTURES FOR 1888.

By G. A. GIBSON, M.D., D.Sc., F.R.S.E., Fellow of the Royal College of Physicians of Edinburgh, and Lecturer on Materia Medica and Therapeutics at Surgeons' Hall.

IN the following remarks it is my purpose to direct your attention to an interesting series of symptoms which have their origin in alterations of the functions of the vaso-motor system, and which, taken together, form an exceedingly definite group of phenomena. The clinical aspect of the facts to be laid before you will receive the largest share of our notice; it will, nevertheless, be necessary to recall at times certain points in regard to the physiological considerations involved in a study of this nature. It will, moreover, tend to a clear understanding of the subject in all its relations if a brief glance be cast, in the first place, upon the normal functions of the vaso-motor system, before we attempt to form any opinions in regard to the changes which they undergo in disease.

The vaso-motor system consists of centres brought into relationship with the vessels by means of the vaso-motor nerves. Many different parts of the spinal cord contain vaso-motor centres, but they appear to be under the influence of one dominating centre for each lateral half of the body. The position of this centre in the rabbit is in the floor of the fourth ventricle, about two or three millimetres from the middle line, reaching from about one or two millimetres below the corpora quadrigemina to four or five above the calamus scriptorius. In this position it is, as you may readily imagine, in very close connexion with a number of other important centres. It is intimately associated, for example, with the inhibitory and accelerating centres for the heart; with the different parts of the respiratory centre, as well as the allied centres for coughing and sneezing; with the centres for the reflex actions of the lips, mouth, pharynx, and salivary glands; with the vomiting centre; with the centre controlling the sudoriparous glands; and, lastly, with the upper centre for the dilatation of the iris, and that controlling the movements of the eyelids. The proximity of these various centres, and their intimate relations, render it easy to understand why poisons which act upon the medulla cause such varied effects, and why certain diseases, which directly or indirectly affect this region, produce symptoms so wide-spread and far-reaching.

Under ordinary circumstances, the vaso-motor centres appear to be in a condition of medium tonic irritability; stimulation, whether immediate or reflex, induces contraction of all the arterioles, with an increase of blood pressure, while depression, either direct or indirect, causes dilatation of these vessels throughout the body, with a diminution of the arterial pressure.

Amongst influences which directly affect the vaso-motor centres must be mentioned, in the first place, the condition of the blood in regard to its contained gases. When the blood circulating in these centres has a free supply of oxygen, they remain in a state of moderate irritability, and the arterioles are dilated; but if, on the contrary, the oxygen is deficient, the irritability increases, and the vessels are thrown into a condition of contraction. As a familiar illustration of this fact, it may not be out of place to recall the well-known circumstance that the empty condition of the arteries after death is the result of the venosity of the blood, which has caused such a contraction.

The only other agents directly affecting the centres to which reference need be made in this place are drugs, and of these no more requires to be said at present than the fact that strychnine may be regarded as the type of those substances which excite the centres and produce a rise of arterial tension through contraction of the arterioles, while amyl nitrite may be taken as a good example of the opposite group.

Indirect agents causing changes in the irritability of the centres produce their effects reflexly, by means of two sets of afferent nerves. There are, firstly, pressor nerves, which give rise to contraction of vessels and a rise of blood pressure through increase of the central activity. These nerves are brought into play by fall of external temperature, for instance, and many other causes. There are, secondly, depressor nerves effecting opposite results by means of diminished central activity. These are excited by heat externally, to mention a familiar example, as well as by other circumstances.

It seems highly probable that in addition to the vaso-motor, or, as they might be called, vaso-constrictor centres, there are vaso-dilator centres with special nerves. This question, however, cannot be regarded as sufficiently definite to afford a basis for the explanation of clinical phenomena, yet it appears to be far from improbable that many conditions characterized by vascular dilatation may have their origin rather in excitement of such vaso-dilator, than in depression of the vaso-constrictor centres.

Before leaving these preliminary considerations, let me once more refer to the close proximity of the medullary centres. The fact of their being in this direct contact gives an easy explanation of many associated symptoms such as we are about to consider; for, as may readily be understood, if a powerful degree of excitement is induced in one centre, it tends to spread into neighbouring areas of nervous activity. Perhaps the most familiar example of this fact is to be found in the common circumstance, to speak of other centres in passing, that in diseases attended by prolonged coughing there is a great tendency to the production of vomiting towards the end of the fit of coughing.

Turning now from such preliminary considerations to the subjects

which are more particularly to occupy our attention, let me, in the first place, bring under your notice some clinical phenomena depending upon an increase in the irritability of the vaso-motor centres. It is well known that at the outset of acute diseases there is usually profound excitement of these centres, manifested by such general symptoms as pallor of the surface caused by contraction of the vessels, and associated with a sensation of cold attended by shivering. It is quite outside the sphere of this lecture to dwell upon such vaso-motor changes as we find in fevers and inflammations, but it will certainly make my aim clearer if you will allow me to make such passing references as this.

Among phenomena caused by excessive action of the vaso-motor centres, we may glance at certain effects produced upon the skin. In patients of neurotic tendencies it is extremely common to find patches of pallor upon the surface contrasting strongly with the healthy skin, and very frequently such patches occur in areas which are deeply flushed. On the forehead, cheeks, and neck, there may be pale and flushed patches mutually bounding each other and sharply defined. When such is the case, other nervous phenomena are present in addition to the contraction and dilatation of the vessels. Of such attendant symptoms, perhaps the most common are dilatation of the pupils and palpitation of the heart, telling the tale of medullary excitement. Cases have not infrequently come under my notice in which a carious tooth or an astigmatic eye has produced long continued phenomena of such a kind.

One of the most frequent, as well as most striking, results of vascular constriction from vaso-motor excitement is to be seen in hemicrania or migraine. This condition, in the fully developed form or in lesser degrees, frequently follows some affection connected with the eye, or ear, or mouth, and speaks of irritation of the sympathetic nerve produced reflexly through the medulla, and shown by several associated symptoms. There is the severe pain caused by deficient nutrition of the nerves from vascular constriction, and pallor of the surface due to the same condition, while the dilated pupil is evidence of excitement of the medullary centre for the movements of the iris, and the emesis which follows is proof of irritation of the vomiting centre. But it must not be forgotten that hemicrania may be the result of other changes than those just referred to, and the cause of the affection can only be arrived at by careful study of the various symptoms present. Most of the cases of migraine, however, which have fallen under my own observation have had their origin in conditions similar to those just described. Astigmatism or some other faulty state of the vision has most commonly been at the root of the malady, and it is of interest to mention that in the course of the onset, pain has commonly been complained of, not only at the base of the skull posteriorly, but also over the cilio-spinal region, that is, over the

lower cervical and upper dorsal vertebrae. In some of these instances the patients have learned to regard the pain over the spine as the herald of an attack of migraine.

Let me next refer briefly to a much more serious condition—the malady known as angina pectoris. This affection is the result of various pathological changes, and its mode of production is therefore somewhat diverse. But in this place the only form of angina pectoris which can be discussed in this connexion is that which depends upon irritation of the vaso-motor system, the affection known in Germany as “angina pectoris vasomotoria.” In the typical form of this affection there is high arterial tension, which alone is enough to distinguish it from almost all other forms of angina pectoris, with pallor and coldness of the surface and an excited frequent pulse, caused by the struggle to overcome the obstacle to the passage of the blood into the capillaries which results from the contraction of the arteries throughout the body. It might be expected that the pulse should be infrequent with high tension, but it must be remembered that in all true cases of angina pectoris the heart is enfeebled. At times the vascular contraction may be local, but in by far the larger number of cases the arterial spasm is general.

Brief reference may be made to the means by which the excitement of the vaso-motor centre and the spasm of the vessels may be removed. For rapid effects, as you are all aware, no drug is to be compared to nitrite of amyl administered by inhalation, and for slower but more lasting influence nitro-glycerine is equally reliable, while spirit of nitrous ether is in many cases a most useful preparation in the affections we have been considering. The tropeine series of drugs must not be passed over in silence, as belladonna, stramonium, and hyoscyamus, as well as their alkaloids, possess considerable efficacy in such cases, and lobelia and tobacco may be found of use in certain instances. We may also fall back upon chloral and several products of distillation, especially chloroform and ether, if any of the substances just mentioned cannot be employed in the treatment of such affections.

In the next place, there are symptoms arising from depression of the vaso-motor centre which now claim our attention. Such symptoms, as has already been hinted, may possibly be found in the future to depend upon irritation of vaso-dilator centres, but at present we can only explain them by reference to the vaso-constrictor apparatus. We shall, in the first instance, consider those belonging to the cutaneous and subcutaneous tissues. Passing reference was made to the fact that in the initial stage of acute general diseases there is usually a tonic constriction of the vessels of the surface of the body, attended by cold and pallor; and it should be mentioned here that this stage is followed by a dilatation of these superficial vessels, associated with heat and redness. The contraction is

caused by irritation of the vaso-motor centre, and the dilatation by depression.

Patches of flushing were incidentally referred to in the remarks made upon the occurrence of blanched areas. Such association of pale and ruddy patches evidently depends upon an irregular excitement of the different parts of the vaso-motor centres, whereby certain of the nerves supplying the vessels are set into violent action, while others are profoundly depressed. In a few rare cases local perspirations follow flushing of areas of the skin, and in such instances there must be some excitement of the nerves supplying the sudoriparous glands.

But much more definite appearances than these are common upon the surface of the body from vaso-motor action, and associated with various nervous disturbances there may be different results of cutaneous hyperæmia. Patches of erythema, or of prurigo, or of urticaria, may be developed in a fugitive manner, and the chief point to be noticed is that there is a great tendency towards the association of these diverse forms of disorder in the same person and at the same time.

The subcutaneous textures are perhaps even more frequently involved than the skin in vaso-motor disturbances, and local œdemas of the arms or legs form an extremely common symptom of such disorders. Considerable pain is often the result of such conditions, on account of the pressure exerted on the sensory nerves of the affected regions by the fulness of the parts.

Vaso-motor influences frequently cause changes in the internal organs, and you will perhaps allow me to lay before you a few facts bearing upon cases of this nature. In doing so, only affections which may correctly be termed neurotic can be referred to, as it would be beyond the province of these remarks to transgress further.

Cases of vaso-motor neuroses affecting the lungs have come under my notice. In such instances, sudden pain and breathlessness have called attention to the thoracic viscera, and the rapid development of a muffled percussion sound, and crepitations on auscultation, have led to the apprehension that pneumonia was impending. The temperature has in such cases, however, been nearly if not quite normal, and a few hours have seen the disappearance of every pulmonary symptom.

In the case of the abdominal viscera, similar conditions are even more striking. You know that a very large quantity of blood may be contained in the intestines when the splanchnic nerves have been divided, and in neurotic patients effects entirely analogous to the changes produced by section of these nerves are caused by disturbances of the vaso-motor system. In such cases it is permissible to speak of splanchnic paralysis. Its results manifest themselves by swelling of the abdomen, distinguished from flatulent distension by the want of resonance on percussion; and this

enlargement is often attended by pallor and coldness of the whole surface of the body, along with empty arteries, which may be almost pulseless. In cases of this nature, as in neurotic affections of the thoracic viscera, the symptoms commonly vanish as speedily as they appear.

A more common symptom, however, of neurotic troubles is what is known as nervous diarrhoea. This is frequently to be observed in hysterical patients, but it also occurs in persons of neurotic tendencies without hysterical disturbances. The first case of the kind which came under my notice was a gentleman, who assured me that he was unable to attend church on account of this symptom. From personal knowledge of the vicar of his parish, it seemed to me that the patient was malingering in order to avoid the tedium inseparable from attendance on his ministrations, but wider experience has convinced me that this suspicion was unjust. Many cases of the kind have since been under my observation, and the point common to them all has been that the diarrhoea invariably came on when the patient was at some meeting. It is, perhaps, more common among nervous schoolboys than any other class.

Upon the connexion existing between the vaso-motor nervous system and the urinary secretion it will be proper to say a few words. If the renal nerves, which enter the kidney by the hilus, are divided, there is apparently dilatation of the afferent vessels going to the glomeruli, followed by an increase in the quantity of the urine. It is further known that there is a point in the floor of the fourth ventricle, in front of the origin of the vagus, injury to which gives rise to the condition termed hydruria.

It is hardly necessary to refer to the well-known fact, that disturbances of the mental processes cause changes in the amount of urine; such emotions as fear, for example, cause effects similar to those produced by cold externally; in both cases the superficial vessels are contracted, and the quantity of urine undergoes a great increase. The same effect is also to be observed as a symptom of various neuroses, no doubt dependent upon central disturbances, and usually associated with other nervous phenomena.

But beyond such renal symptoms as those just described there are others of more importance. Albuminuria in young persons of both sexes, who inherit nervous tendencies, is not by any means uncommon. It has been explained in many ways, and, no doubt, may be caused by several different conditions; as it is, however, frequently found in patients who have no apparent disturbance of the nutritive processes, but who present signs of nervous disorder, the conviction has been forced upon me that the appearance of albumin in the urine is in not a few cases the result of vaso-motor influences.

Amongst the agents at our disposal for stimulating the vaso-motor system, strychnine deserves a high place, and its employment is in most cases followed by immediate benefit. But digitalis and

the drugs which possess a similar action may be used with advantage, because they also produce a considerable degree of stimulation of the vaso-motor mechanism.

You will perhaps allow me to say a few words in regard to the connexion of the vaso-motor system and glycosuria. It is hardly necessary to refer to the fact that injury to the centre of the vaso-motor nerves of the liver (the so-called "diabetic puncture") produces glycosuria. And it is almost as unnecessary to remind you that when the vaso-motor nerves which supply the liver are divided, glycosuria is also produced. In both of these experiments the liver becomes hyperæmic, the circulation in that organ is modified, and, in consequence of this, the hepatic cells can act with greater effect upon the glycogen; they, therefore, produce an excess of sugar.

But there are other facts not quite so well known, which you will perhaps allow me to mention briefly. There is, for instance, the fact that when the splanchnic nerves are cut, after glycosuria has been produced, the sugar is reduced in quantity or disappears entirely. This is probably caused by the reduction in the quantity of the blood circulating in the liver, which follows the dilatation of the abdominal vessels consequent upon the division of the splanchnic nerves. And it must also be remembered that when the central end of the divided vagus, or depressor, or even sciatic nerve is stimulated, sugar appears in the urine—a fact which throws light upon the well-known clinical phenomenon of glycosuria following injury to distant nerves. In such cases the effect is a reflex one, and is undoubtedly produced through the vaso-motor mechanism.

The effect of such drugs as opium and codeine, which lessen the amount of sugar in glycosuria, is to be explained chiefly by their action upon the centres in the medulla.

In many patients we find several of the symptoms which have been described linked together. We may observe, for example, in a patient who has a troublesome ear affection, a severe attack of migraine, associated with patches of erythema, and followed by polyuria. Or, in another case, there may be some error of the visual mechanism, causing pain over the cilio-spinal portion of the back, attended by local œdemas and a turgid abdomen, and ending in a free flow of fluid from the intestine. But in many cases several similar phenomena may exist together, apparently unconnected with any definite cause, such as, for instance, an affection of the special senses. In many of these patients, whether male or female, there will be found painful spots over the vertebral column, and for all such cases the application of iodine, or a blister, or the actual cautery over the spine, will be found beneficial, along with the continuous current from the medulla to the feet and hands, and the use of tonic remedies.

Part Second.

REVIEWS.

Lectures to Practitioners:—On the Diseases classified by the Registrar-General as Tabes Mesenterica. By W. T. GAIRDNER, M.D., LL.D. *On the Pathology of Phthisis Pulmonalis.* By JOSEPH COATS, M.D. London: Longmans, Green, and Co.: 1888.

THESE lectures were originally delivered in the Western Infirmary to medical practitioners, and we cannot but think that the authors have done wisely in giving them wider publicity. They have undoubtedly conferred a distinct benefit upon the members of the medical profession by admitting them to the privileges accorded, in the first instance, to our western brethren, and by laying their views before the scientific world.

All who are acquainted with the writings of Professor Gairdner will approach the perusal of his present lectures with anticipations of gaining instruction from his wide experience, and enjoying pleasure in the singular charm of his style. Such expectations will not be disappointed by these lectures, which contain the results of profound observation and historic research, embodied in language which is at once remarkable for its scientific precision and its chastened elegance.

The main argument involved in Professor Gairdner's lectures is, that the term *tabes mesenterica* embraces diseases characterized more by chronic peritonitis and its effects than by affections of the mesenteric glands. His reasoning is based upon a full consideration of pathological and clinical facts, and it is impossible to follow the various steps by means of which he arrives at his conclusions without being convinced of the justice of his views. It follows that his prognosis in cases of *tabes mesenterica* is by no means so hopeless as it generally is.

Some of his criticisms upon the influence of pathological evidence in the study of disease are of deep significance. When contrasting clinical and pathological ideas, for instance, he remarks,—“Pathological anatomy has given us information, extremely valuable, no doubt, and accurate of its kind, but still information *with a bias*. It has told us in great detail, and with great precision, *what has happened to those who die*; it has not told us with anything like the same precision, sometimes it has not told us at all, *what has happened to those who recover*.” And again, in some remarks on prognosis, he says,—“I am, nevertheless, clearly of opinion that the precise observation and the just significance of these physical signs *in cases which are not fatal*, but which make, at all events a temporary, and in some cases a permanent recovery, has not hitherto had sufficient attention bestowed on it; and one consequence of this has been, that in even the most justly esteemed

monographs, as well as in most of your handbooks, the *prognosis* in these diseases inclines far too much to the grave and even hopeless aspect of them, and fails to recognise the existence of more or less similar cases which would tend to qualify that prognosis." These quotations will serve as an example of the calm, judicial view which Dr Gairdner takes of the different aspects of the disease, and it is not too much to say that by these lectures he has made one of the most important contributions to practical medicine of recent years.

Dr Coats's lectures on the pathology of *phthisis pulmonalis* also deserve a high meed of praise. After defining the term phthisis as "a progressive disease of the lungs, whose ordinary and regular result is the destruction of the lung-tissue and the formation of cavities," he distinguishes two groups into which the cases of phthisis naturally fall. He describes, firstly, a caseous form, characterized by the presence of tubercles and the occurrence of caseous necrosis; and, secondly, a fibroid form, in which tubercles and fibroid transformation are prominent features—both groups having their origin in plugging of the smaller bronchial tubes, but differing in their subsequent stages. A comparison of the clinical aspects of the two forms follows, and from the statistics which are given it appears that the caseous is to the fibroid form in the numerical ratio of 5 to 1; that while 58 per cent. of the total number of patients affected with the caseous form die below the age of 30, and 42 above that age, in the fibroid form, the respective percentages are 48 and 52; and that whereas the duration of the disease in the caseous form is under one year in 71 per cent. of the cases, and above one year in 29 per cent., in the fibroid form the percentages stand respectively as 40 below and 60 above one year's duration, the average duration of the caseous group being rather less than one year, and of the fibroid group nearly three years. The relative number of cases with tubercular ulcers of the intestine was found to be almost the same in both groups. In drawing a distinction between the two forms, Dr Coats concludes that "the difference is determined by the individual proclivities of the patients."

Dr Coats then deals with conditions allied to phthisis, and afterwards plunges into the causation of that disease, going into full details as to the agencies at work in determining caseation, including the bacillus tuberculosis and its chemical products. The predisposing causes, the process of healing, and the secondary phenomena within as well as outside of the lungs, receive full justice in the two concluding lectures.

These lectures present a very clear and fair estimate of the pathology of phthisis, and will aid in rendering the whole subject more easily grasped than it often seems to be. They are full of the deepest interest to every medical practitioner; and Dr Coats has done the profession signal service by allowing them to be brought forward in this volume.

A Text-Book of Physiology. By M. FOSTER, M.A., M.D., LL.D., F.R.S., Professor of Physiology in the University of Cambridge, and Fellow of Trinity College, Cambridge. Fifth Edition. Part I. London: Macmillan & Co.: 1888.

IN the midst of the dreary succession of common-place text-books of physiology, new or rejuvenescing in new editions, which are at present being poured upon the bewildered student, it is delightful to meet one which deserves only unqualified praise. Such a book is now before us..

It is in all respects an ideal text-book, and it says little for the mental training of Scottish medical students, or for the examinations to which they are subjected, that it is not a greater favourite among them.

With a complete, accurate, and detailed knowledge of his subject, the author has succeeded in giving a thoroughly consecutive and philosophic account of the science. The student's attention is throughout kept fixed on the great and salient questions, and his energies are not frittered away and degenerated on petty and trivial details, the introduction of which so markedly characterize at least one of the recent physiological text-books, and which, while they may serve to advertise the author's erudition, certainly injure rather than benefit the student.

It is only the physiologist who has devoted time to the study of some branch of the great science who can read between the lines of this wonderfully generalized account, and can see upon what an intimate and extensive knowledge these generalizations are founded. It is only the teacher who can appreciate the judicious balancing of evidence and the power of presenting the conclusions in such clear and lucid form. But by every one the rare modesty of the author, in keeping the element of self so entirely in the background, must be appreciated.

Those familiar with Dr Foster's masterly article on "Physiology" in the *Encyclopædia Britannica* naturally expected that this edition of his text-book would be an advance upon those which have already appeared, and in this they will not be disappointed.

The true basis of the science—the physiology of protoplasm—is fully recognised, and upon this is built the discussion of the various vital phenomena.

In this volume we have, after the general introduction, a full account of the physiology and chemistry of the blood. The author next considers the contractile tissues; and most wisely, as in his previous editions, considers together most of the phenomena of muscle and nerve. Finally, the vascular mechanism is dealt with. In this section we feel sure that the student will welcome the admirable diagrams which have been added to the present edition.

Reviewing this volume as a whole, we are justified in saying that it is the only thoroughly good text-book of physiology in the English language, and that it is probably the best text-book in *any* language.

The Fatal Illness of Frederick the Noble. By Sir MORELL MACKENZIE. London: Sampson Low, Marston, Searle, & Rivington: 1888.

To properly appreciate Sir Morell Mackenzie's account of the illness of his late august patient, it is necessary to read the "official" record entitled *Die Krankheit Kaiser Friedrich des Dritten*, previously published by certain of the German surgeons interested in the case. This remarkable book contains among a number of querulous complaints, the outcome of a wounded vanity on the part of those who seem to be chiefly responsible for its publication, certain charges to which Sir Morell in *Frederick the Noble* has furnished an able and effective reply. It is certainly an unfortunate matter that the controversy which raged about the late Emperor's death-bed could not have been buried along with him, and it is somewhat disappointing that the account of the illness published in this country should have to take the form of a vindication of the conduct of the Emperor's chief medical adviser. Some critics have not been quite fair to Mackenzie on this point. It must be remembered that there was no sign of a renewal of the controversy, so far as he was concerned, until the German surgeons, Gerhardt and von Bergmann, aided and abetted by the official party in Prussia, gave to the world their so-called official account. In certain circumstances there would have been no need to have paid attention to these complaints and charges, but Mackenzie has felt it to be a duty he owed to the exalted persons who honoured him with their confidence that he should justify the trust they placed in him.

The issue raised by Gerhardt and von Bergmann (for it is they who are responsible for it) is that Mackenzie, by declining to agree to the performance of what they declare to be a simple and easy operation in May of last year, brought about or hastened the Emperor's death. It is admitted by all the medical men who were in any way connected with the case that the disease to which Frederick the Noble succumbed was cancer of the larynx. Whether the data were sufficient or not, it would appear that Gerhardt and Tobold arrived at this conclusion very early—much earlier, Gerhardt admits, than is usual in the course of such cases,—and just before Mackenzie was called in by them, arrangements had been made for an exploratory thyrotomy by von Bergmann. In calling in Mackenzie the report written by Gerhardt would seem to indicate that they simply expected from him a complacent acquiescence in their diagnosis and treatment, and that the operation would take place forthwith. It is somewhat curious that a laryngologist whose previous writings showed him to be greatly averse to thyrotomy, whether for benign or malignant growths, should have been called upon to sanction its performance in this case.

As was to be expected, he did nothing of the sort, and the ground he took up seems to us to have been perfectly legitimate and consistent. To his mind the data for the cancer diagnosis were insufficient. Without denying that there might be cancer, he held, as he himself puts it, that its presence was "not proven," and holding such an opinion he could not consistently have agreed to the performance of an operation attended, as statistics show, with so much risk as the one proposed. There is no doubt whatever that neither Gerhardt nor von Bergmann in proposing the operation knew exactly how much they would have to do nor how far they would have to go. A very optimistic account of it seems to have been given by them to the Crown Prince and his family. Confident as they assert themselves to have been in the correctness of their diagnosis and advice, they, nevertheless, acquiesced in Mackenzie's view, that endolaryngeal treatment should be carried out until more convincing evidence was got of the cancerous character of the growth. This was not obtained till a late period in the case, and whether the disease was malignant to begin with, or whether it became so during its course, is a question of extreme difficulty. In spite of the statements in the "official" report that the case was typical of cancer from beginning to end, there were many features in it that were certainly not so. Mackenzie more than hints that some of those peculiar features were the result of the previous treatment of Gerhardt. Whether this be so or not, there is no doubt from Gerhardt's own statement that the galvano-cautery was applied to the Crown Prince's larynx with an energy to which larynges in this country are rarely if ever subjected.

Having agreed that the endolaryngeal treatment should be conducted by Mackenzie, it might have been thought that the surgeons who requested him to undertake it would have assisted him loyally in carrying it out. This, however, was not to be. Two days after his first attempt to remove a portion of the growth (an attempt which was successful, and elicited a favourable report from Virchow), Mackenzie tried again, and as not unfrequently happens in the use of the laryngeal forceps, he failed on this occasion to seize the growth. For some reason best known to himself, Gerhardt then accused him of having injured the right or healthy vocal cord. There can be no doubt that Gerhardt's accusation was groundless. Mackenzie's wonderful manipulative skill is well known to surgeons, and it is in the highest degree improbable that he would pass the forceps into the larynx in the way suggested by Gerhardt, when the ray of light from his forehead mirror illuminated not the fauces but the cheek of the patient. Moreover, the forceps used by him and known by his name are so made that it would be a matter of some difficulty to inflict with them the injury described. This, if it ever existed, did so only in the imagination of Gerhardt himself, who, as he has no doubt frequently repeated the accusation to himself and others, and has now the satisfaction of seeing it in print,

probably believes in it as implicitly as did George IV. that he led the British troops to victory on the field of Waterloo.

In spite of this imaginary injury the Prince's condition improved, and it was not till the end of October that alarming symptoms appeared. Mackenzie's opinion was that these new symptoms indicated a cancerous formation, and at a consultation, in which Schrötter, Krause, Schrader, and Hovell took part, as well as Mackenzie, the cancer diagnosis was agreed to. On the following day the prospects of a radical operation were laid before the Crown Prince, who after consideration declined to undergo any operation save tracheotomy, if it should become necessary. About the end of November the symptoms became more favourable. Ulcers healed, the laryngeal growths became smaller, as did also the glands which had been enlarged. Hopes were entertained that the cancer diagnosis might prove to be incorrect. Unhappily these favourable symptoms did not continue. Tracheotomy became necessary, and was performed by Bramann on the 9th February. Difficulties arose afterwards with the tubes, and it is asserted that these difficulties were due in part to the unusual size of the cannula first used by Bramann, and in part also to the fact that the tracheal incision was to the right of the middle line. It is only fair to Bramann to state that in his report to Bergmann he denies this, and is supported by him. On the other hand, measurements made by Hovell by means of a probe bent at right angles and passed into the wound show that this bent portion, which was nine millimetres long, remained in view to the extent of two-thirds of its length when made to touch the right wall of the trachea, but disappeared altogether when turned to the left. The inference is that the opening in the trachea was considerably to the right of the middle line. This point is illustrated by some well-executed diagrams, but one of these (Fig. 15) is confusing, as it shows the opening too much to the left.

The difficulties with the tubes continued after the patient's accession to the throne, and culminated in the unfortunate occurrence of April 12th. This occurrence has been differently represented by Mackenzie and Bergmann. There may have been some not unnatural hesitancy to accept Mackenzie's statement, but the further and independent evidence that has lately been produced in the *Nineteenth Century*, in an article on "Frederick the Third and the New Germany," by a writer who is said to be exceptionally well informed, is entirely in his favour. The Emperor's condition thereafter changed more rapidly for the worse. Two months later the end came; the vital powers diminished steadily and quietly, without any real agony—the hero of Königgrätz, Wörth, and Sedan passed away.

There is little doubt that the position taken by Mackenzie at the first consultation in May 1887 saved the Crown Prince from the risk of a death which although, according to the *Kölnische Zeitung*, one of the anti-Mackenzie newspapers, it "would have been easy,

may, almost painless," was not exactly what was desired by the Prince himself nor by his family. To this also, in all human probability, is due the preservation of the Crown Prince's life long enough to enable him to ascend the Imperial throne, which he did so much to establish. What Mackenzie had to endure from querulous and disappointed colleagues is in part revealed to us in their "authentic" record, and though we should have been better pleased to have had an uncontroversial account of a case that was of extreme interest apart from the high social position of the patient, we are not inclined to cavil at the sharpness of his reply to unscrupulous antagonists.

The Practice of Medicine and Surgery applied to the Diseases and Accidents incident to Women. By W. H. BYFORD, A.M., M.D., Professor of Gynæcology, Rush Medical College; and HENRY T. BYFORD, M.D., Surgeon to the Woman's Hospital of Chicago. Fourth Edition. Revised, rewritten, and very much enlarged, with 306 Illustrations. London: J. & A. Churchill: 1888.

THE title of this book affords a fair indication of the method in which the subject-matter is handled. The author is, no doubt, a gynæcologist, but he is also an experienced physician of ripe and mature judgment; and it is from the standpoint of such a physician, possessing as he does a most intimate acquaintance with the practice of gynæcology, that the author speaks.

The first chapter, which is new, is entitled Practical Observations upon the Anatomy and Physiology of the Female Pelvic Organs, and in it the subject is presented in a clear, concise, and instructive fashion; while the next three chapters, also new, on Examination of the Female Pelvic Organs, are perhaps the best and fullest exposition of the subject we have seen, and include full directions for the palpation of each and every pelvic structure. These four chapters, forming as they do a very complete introduction to the study of gynæcology, demonstrate what is a characteristic feature of the whole work, viz., careful and minute attention to accuracy of diagnosis. In passing, we may notice an ingenious instrument of the author's—the hystrometer—designed on the principle of the pelvimeter, and constructed of two sounds jointed at the handles, and with a scale for reading the degree of separation of the points. The sounds may be introduced into bladder, uterus, or rectum, and thus accurate information obtained as to the thickness of the uterine walls. The author might, perhaps, with advantage have laid a little more stress on the utility of dilatation of the cervix for diagnostic purposes, and have referred at any rate to Hegar's dilators. The ingenious conical screws introduced by W. L. Reid, of Glasgow, are not noticed, nor, indeed, are they in any work we are acquainted with, though in our hands they have served most admirably the end in view.

The chapter on Laceration of the Perineum is elaborately full,

including a table of no less than twenty-three varieties of tear, to designate which the author has made use of geometric symbols, which ludicrously remind one of Arabic or Hebrew printed characters. Fortunately, however, he does not insist on a special operation for each, but lays stress on the importance of carefully examining each case as to the extent of injury, and endeavouring always so to unite the new surfaces that the characteristics of the perineal body will be restored. To quote his own words,—“The chapter . . . has been rewritten with the end in view of enabling the young practitioner to treat these accidents with discriminating intelligence, instead, as is so often the case, of learning to carve all injured perinæa to suit one stereotyped operation.”

In the chapters on Vesico-Vaginal Fistula and on Laceration of the Cervix, the author pretty closely follows Emmet in his teaching. When speaking of menstruation, he puts forward a strong plea for the careful attention to the health and surroundings of girls at the time of puberty, and says that want of care at this time is a frequent cause of uterine trouble in later life. We are sorry to see the galvanic stem pessary (modified, and with the author's name attached, as becomes a gynæcologist of his standing) so highly spoken of in the treatment of amenorrhœa. It is questionable whether, even in the hands of experts, its use is safe; it is certain that its use by others is likely to cause mischief. On the vexed question of displacements, and of their relation to dysmenorrhœa, it is impossible to please every one, and there is little to be gained by constantly repeated argument of the subject. To quote from the author,—“It will probably surprise the student when he is told that all of these diverse opinions are held by gynæcologists of equal eminence, integrity, and opportunity for observation.” “Another consideration” regarding this divergence “is that, while judicious practitioners hold antagonistic opinions as to the nature of diseases, they pursue so nearly the same line of practice as to lead to similar results in the treatment of them.” We will not, therefore, discuss this matter with the author, but merely indicate that he advises the use of anteversion pessaries; also of pessaries acting in front of the cervix—blockers—in backward displacements under certain restrictions, and that he favours the judicious and cautious resort to operative measures when others have failed, such as Alexander's operation, along with which he advises the shortening of the sacro-sciatic ligaments, as practised on two occasions by himself,—an operation, however, in which it is not likely that he will have many followers.

In the treatment of fibroid tumours he evidently pins his faith to ergot, *when properly used*; and into this question he enters very fully, while Apostoli's treatment is only referred to—with approval, however, when carried out by those specially experienced in it.

The question of “Neuræsthenia,” “Sympathetic or Reflex Symptoms of Uterine Disease,” or Hysteropathy, is very full, even start-

lingly so; but if read in the light of, and subject to the restrictions of the context, it will be found to represent a striking and faithful picture, not of any one case certainly, but of this class of cases in general, while the treatment recommended is sound and well detailed, evidencing the author's full and ripe experience as a physician.

While not by any means ignoring the surgical aspect of modern gynæcology, it is undoubtedly in the volume before us not given the almost exclusive position that some gynæcologists would seem to assign it; and we can cordially recommend the work as a most excellent guide to the diagnosis of women's diseases, and a most safe and trustworthy one as regards their treatment.

The Student's Handbook of the Practice of Medicine. By H. AUBREY HUSBAND, M.B., C.M., etc. Fourth Edition. Edinburgh: E. and S. Livingstone: 1888.

A FOURTH edition of this handbook needs but little notice. From the time when it was first offered as a help to students working for examination, it has with each edition increased in size and fulness. A special feature of this edition, and one which will commend it to students, is the addition of a set of tables for diagnostic and other purposes. These are numerous, and their value may be shown by the following, which may be given as examples:—Table showing points of distinction between relapsing, typhus, and typhoid fevers; diagnosis of death—the result of disease or from strychnia-poisoning; the effect of injury or disease of different portions of the brain; the physical signs and results of disease of the valves of the heart. The increased size of the book is due to these tables, and to additions made to the chapters on the nervous and circulatory systems.

It would be altogether undesirable if the excellence of this book were to keep any man in his student days from reading the classical text-books; on the other hand, while the present examination system is in force, such a book as Dr Husband's is a necessity, and his we can recommend as likely to be useful.

A Practical Text-Book of the Diseases of Women. By ARTHUR H. N. LEWERS, M.D. Lond., M.R.C.P. Lond., Assistant Obstetric Physician to the London Hospital, etc., etc. With Illustrations. London: H. K. Lewis: 1888.

THE above volume forms one of Lewis's practical series, and in it the author has fully succeeded in showing what a practical text-book for students should be. From preface to finish the style and matter are eminently practical and clinical, and with one or two exceptions the space and attention devoted to the various subjects are well apportioned and balanced. It might not have been amiss

in a book of the modest pretensions of the one before us had the author omitted his lengthy description of ovariectomy, as it is quite safe to assume that no student will undertake the operation, and that any practitioner wishing to do so for the first time will consult some of the special treatises on the subject.

The treatment inculcated throughout the book is characterized by careful moderation, and the following extract will fairly demonstrate the author's position in this respect—"The Apostoli treatment is obviously a more severe measure than palliative treatment . . . and it is our duty to relieve our patients by the least severe means at our disposal." Were such advice fully acted upon, say in regard to diseases of the ovaries and tubes, there would be fewer demonstrations of these organs at Society meetings, as the patients would, in the words of an American physician, who was apologizing for not having such specimens to illustrate his paper, "surreptitiously walk away with them." Perhaps, however, in the chapter on Laceration of the Perineum the author has rather overreached himself in his efforts to avoid giving his readers a bewildering variety of treatment, and thus confusing them. The operative treatment he recommends is undoubtedly beautiful in its A B C simplicity, but we question very much whether he has not, by omitting a description of some of the undoubtedly more complicated operations for the restoration of the sphincter ani and perineum, sacrificed utility to simplicity.

When speaking of the prevention of pelvic peritonitis the author makes the following statement, which we may quote as a contribution to the "nail-brush controversy" at present engaging the attention of some of the German scientists. After condemning the use of a knife to clean under the finger nails, he says, "It may be unnecessary to dwell upon this apparently small matter, but it is in reality one of great importance—first, because the practice referred to is a common one—and, second, because the writer has himself noticed a series of cases of puerperal peritonitis which occurred in the practice of one individual who adopted this means of cleansing his nails." Surely there is a laxity in the logic here, or have we at last solved the problem of the prevention of puerperal fever?

Manual of Clinical Diagnosis. By Dr OTTO LEIFERT, Würzburg, and Dr FRIEDRICH MÜLLER, Berlin. Third Edition. Translated by W. B. CORNFIELD, A.M., M.D., Baltimore. Edinburgh: Young J. Pentland: 1888.

THE opinion formed of a book of this kind depends largely on its precise object and on the manner in which it seeks to attain that object. In the preface to the first edition the authors state that they have "endeavoured to supply a want by giving, in an epitomized form, the different methods of examination, as well as a convenient collection of those data and figures which should

always be familiar to the physician and student." Taking this as the expressed object of the book, the manner in which the work has been done is in the main satisfactory. A book which has reached a third edition in the country of its production must have met a want there, but it does not follow that it is quite the type of book needed in this country. It deals with all the systems; but it is so epitomized, and there is so little that is explanatory, that the junior student of clinical medicine will, we fear, get little assistance from it. To the senior student it may be of assistance in recalling facts and methods which may not be always at his finger-ends.

Under the circulatory system there are some statements which we should hardly wish students to follow; the right edge of the heart is, for instance, placed at the left edge of the sternum; and the systolic murmur of mitral insufficiency is said to be best heard "at the second costal cartilage of the left side, where the enlarged left auricular appendix lies near the pulmonary artery, close to the chest-wall." The right edge of the heart, as the authors doubtless know, is not at the left edge of the sternum, and if its percussion dulness is made out by them to have this limit, there must be something wrong with their method. As to the second point, it has been shown in the pages of this journal years ago, that the theory about the auricular appendix is contrary to anatomical facts; and further, it is not the case that mitral systolic murmurs are heard best at the second left cartilage.

We should also object to the method of percussing the stomach taught here. The liver dulness is given as commencing at the base of the lung; in this country the deep dulness is the one which is regarded as most important, and there is no mention of the method of finding it.

The urine is treated more fully than the other sections. The microscopical examination of the sputum and the *fæces* even find a place, and parasites are not forgotten.

Under the nervous system the translator has retained the latin terminations for the names of nerves, as the *olfactorius*, the *oculo-motorius*, and so forth, which is, to say the least, somewhat pedantic; for even our friends on the other side of the Atlantic, with all their reverence for the archaic, use the English form.

The book closes with seventeen pages devoted to the doses of drugs.

While we think the book has faults, both in design and execution, there is much of value in it; and in some sections it is more modern than any of our present smaller books on the same subject.

The Prevention of Disease in Tropical and Sub-tropical Campaigns.
By ANDREW DUNCAN, M.D., B.S. Lond., F.R.C.S., Surgeon
Bengal Army. London: J. & A. Churchill: 1888.

THIS work was adjudged the Parkes Memorial Prize for 1886,

and most medical men in the army and navy will probably be very thankful for its publication. It is not easy to carry a whole library about when one is on active service, but in the book before us we find, in a compact form and easy of reference, most of the information required in an ordinary tropical campaign.

Dr Duncan has divided his work into two parts: the first part deals with the general principles for the prevention of disease in campaigns in tropical and sub-tropical climates, and in the second part the same principles are developed, as they concern the several special diseases affecting campaigns in hot countries. The plan of the work is very good. In the first part, which consists of fourteen chapters, we have some general remarks as to tropical climates and some useful statistics with regard to recent wars, with the sick-rate and death-rate per thousand of the men employed. Dr Duncan then goes on to give some admirable advice as to the selection of troops and the season for operating; on transport ships, dress, and bedding, as well as on food, camps, marches, and the bivouac; whilst the hygiene of the battle-field and of beleaguered posts is admirably dealt with. That the book is well up to date is proved by the fact that the subject of inoculation for specific infectious pneumonic fever and for yellow fever is referred to.

In the second part, in dealing with various distinct diseases, Dr Duncan is eminently systematic. The etiology of each disease is treated fully; rules for warding off the disease, if possible, are given, and special stress is laid upon prophylactic rations. We cannot say that we agree with Dr Duncan entirely in some of his criticisms on etiological questions, but it requires the study of only a very few pages of this book to convince the reader that the author is thoroughly master of the subject, and we can warmly recommend the work to the attention of those who are intending to proceed to the tropics. A valuable bibliography and a full index are appended.

The Illustrated Optical Manual. By Surgeon-General Sir T. LONGMORE, C.B., F.R.C.S. Fourth Edition. London: Longmans, Green, & Co.: 1888.

WE had occasion not much more than two years ago to recommend the third edition of the *Optical Manual* as one of the most accurate practical treatises on the errors of refraction in the English language. In the fourth edition much new matter has been introduced, and the new edition is also very copiously illustrated. The only thing that can be said against these changes is that they raise the price of the book from 1s. 6d. to 14s., which seems a considerable spring for one edition. In its present form it is unquestionably, as a practical guide to refraction, better than any other English book on the same subject. The subject, too, is one to which much greater attention is now given than formerly. It is therefore of great importance that the information conveyed in an

elementary treatise should be thoroughly accurate as well as elementary. In this respect Sir T. Longmore's book compares very favourably with others which have apparently been pretty widely read. It bears the stamp of a thorough theoretical, as well as practical knowledge, which has enabled the author to steer clear of errors such as are commonly met with in treatises of the kind. On this account it should be read not only by surgeons in the army medical department, for whose benefit it is principally intended, and for whom it contains much necessary information that is not to be had elsewhere, but by doctors in the civil practice as well. Indeed, it would be much to the advantage of those studying the subject of refraction if this book were to take the place of such a book as Hart-ridge's *Refraction of the Eye*, which, although it is crowded with inaccuracies, has nevertheless reached a third edition. On account of the paragraphs which have reference to the requirements of different examining boards as to the vision of the candidates, Sir T. Longmore's book should be on the table of every ophthalmic surgeon.

A Manual of Ophthalmic Practice. By CHARLES HIGGINS, F.R.C.S.E. London: H. K. Lewis: 1888.

It is difficult to see what use such a book as this can serve when for a few more shillings a student can procure the much more complete treatises of Lawson, Nettleship, or Swanzy. In no respect does Mr Higgins improve upon such student's manuals as these. The matter contained in the book is, however, sound enough, the difficulty is only to know to what class of readers a book of this kind should be recommended. One-third of it is occupied by a somewhat crude elementary account of optics, refraction, and the methods of examining the eye, while another third is devoted to operations. This leaves about 100 small pages for the description of all the ordinary diseases of the eye. The operation part is decidedly the best. It is, however, rather late in the day to take up so firm a position as the author does with respect to the inapplicability of antiseptics in eye surgery. The fact of the matter is, that most ophthalmic surgeons would agree with us in looking upon the introduction of corrosive sublimate as one of the greatest advances in connexion with the eye of the last ten or twenty years. The book is sufficiently well illustrated with woodcuts, taken mainly from other works on surgery.

Diseases of the Rectum (Diagnosis and Treatment). By WM. ALLINGHAM, F.R.C.S. Revised, etc., by HERBERT ALLINGHAM, F.R.C.S. etc. London: J. & A. Churchill: 1888.

THE son has partly rewritten, and considerably enlarged, his father's book. Many illustrations have been added. Some of these are good and useful, but others are too diagrammatic to be either

useful or ornamental. The book contains a great amount of information in regard to diseases of the rectum. Practitioners will find it valuable for reference and guidance. Mr H. W. Allingham enlarges on some of his own special ideas, such as the treatment of fistula in ano by the elastic ligature. He believes in a four-bladed speculum instead of dilatation of the anus.

The work is not exhaustive by any means, but still is valuable as giving the united experience of two specialists and extending to two generations.

A Handbook of Therapeutics. By SIDNEY RINGER, M.D., F.R.S., Professor of the Principles and Practice of Medicine in University College; Physician to University College Hospital. Twelfth Edition. London: H. K. Lewis: 1888.

A BOOK which has reached its twelfth edition while its distinguished author is still in the prime of life is past the stage in which reviews will do it either good or harm. Still it is a pleasure, as each succeeding edition leaves the press, to notice how admirably the work is kept up to date, and how its author manages to incorporate what is useful in the daily growing pharmacopœia, and eliminate what is useless or archaic either in our drugs or our theories. It is an admirable manual of clinical therapeutics revised to date, though, as the author states in his preface, it does not dwell so much on the physiological action of remedies.

Chemical Notes and Equations, for the use of Students. By R. MILNE MURRAY, M.A., M.B., F.R.C.P.E. Third Edition. Edinburgh: MacLachlan & Stewart: 1888.

THE author tells us that the purpose of these notes "is to present the student with a brief outline of the fundamental principles of chemical science, and also with a tolerably complete synopsis of the more important relations and reactions of the chief elements and their compounds."

Dr Murray has been completely successful in this work. These Notes are lucid, accurate, interesting, and capable of being remembered.

In this *third edition* we have a section on the Electrolysis of Salts, which adds to the value of the work.

The author has succeeded in producing a book which is sure to prove of great service to all students, and especially to those preparing for professional examinations.

The Art of Dispensing: A Treatise on the Methods and Processes involved in Compounding Medical Prescriptions. Published at the offices of the *Chemist and Druggist*, London: 1888.

THIS volume is largely a reprint from the pages of the *Chemist*

and *Druggist*, and edited by a very competent person, Peter MacEwan, F.C.S.

The volume contains much valuable information on a subject not well understood by some members of the medical profession, if we may judge from their prescriptions. The book cannot fail to convey much valuable information to every medical practitioner who reads it carefully. It is, however, a work specially meant for students of pharmacy, and will be invaluable to them, not only when preparing for their examinations, but in after life when employed as pharmaceutical chemists dispensing prescriptions.

Catalogue of Lewis's Medical and Scientific Library. Revised to Midsummer 1887. London: Lewis's Library: 1888.

MR LEWIS has sent us a copy of his Library Catalogue. The works are arranged in the alphabetical order of the authors' names. Dates of publication and, for the sake of book-buyers, the published prices are added. In addition there is a very full index of subjects, with the names of authors who have written treatises upon them. It will be seen that this Catalogue is one of value. Its price to subscribers is 2s., and to non-subscribers 5s.

Part Third.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION LXVIII.—MEETING I.

Wednesday, 7th November 1888.—Dr JOHN SMITH, *President, in the Chair.*

I. ELECTION OF OFFICE-BEARERS.

The following gentlemen were elected office-bearers for the ensuing session:—*President*, Dr John Smith; *Vice-Presidents*, Prof. Chiene, Dr Clouston, Mr A. G. Miller; *Councillors*, Prof. Grainger Stewart, Dr J. Connel, Dr George Leslie, Dr Maxwell Ross, Dr Ireland, Dr Matthew, Dr A. H. F. Barbour, Mr Charles W. Cathcart; *Treasurer*, Dr Francis Troup; *Secretaries*, Dr James Ritchie, 14 Charlotte Square, and Mr F. M. Caird, 21 Rutland Street; *Editor of Transactions*, Dr William Craig, 7 Bruntsfield Place.

II. EXHIBITION OF PATIENTS.

1. *Dr McBride* showed—(a), A young man suffering from an unusual form of LARYNGEAL NEUROSIS. In the erect position, or when kneeling with his head thrown back, he could only speak in a high falsetto note. The laryngoscopic appearances in this posi-

tion were those usually seen in the production of falsetto notes. He believed the condition to be due to a defect in the crico-thyroid muscle. This was rendered probable by the fact that electricity and massage applied to it improved the voice, and because when the cricoid and thyroid cartilages were pressed together by the fingers the falsetto note was replaced by a normal voice. (b), A woman who suffered from OSSEOUS CYSTS (containing air) of the middle turbinated bones, causing nasal obstruction. In the one nostril he broke down the cyst, removing part of the walls; in the other he contented himself with opening into the cyst and squeezing the walls flat. The result was that in the latter of the two the cyst again expanded.

2. *Dr Affleck* showed a woman, aged 27, who had recovered from an attack of ALCOHOLIC PARALYSIS after treatment by massage. She was admitted to his wards in the Royal Infirmary on 1st March of the present year, showing the symptoms in an aggravated form,—severe pains in the feet and limbs, together with cramps, remarkable paræsthesiæ, loss or delay of cutaneous sensibility over various areas in the lower extremities and hands, both hands in the condition of wrist-drop, along with complete paraplegia and great atrophy of all the paralyzed muscles. There was also marked muscular hyperæsthesia, and while the skin was insensible to touch, when the muscular mass was laid hold of, the pain was agonizing, and continued after the pressure was removed. The hands showed peculiar athetotic or disorderly movements. There was also marked vaso-motor disturbance and acceleration of the pulse, the rate being 140, and no increment of temperature, due probably to paralysis of the inhibitory fibres of the heart, remarkable hebetude, and loss of memory. The whole case was quite characteristic of the condition, and the history was one of long-continued alcoholic excess. The symptoms had continued from early in January. She was absolutely helpless. There was no visceral paralysis. The electrical reactions were much impaired, and the reaction of degeneration well marked in the lower extremities. The treatment consisted in the entire suspension of the cause, and the administration of good aliment and tonic remedies—iron, quinia, and strychnia, and also the use of bromides to relieve the severe neuralgic and myalgic pains. She was also treated by galvanism and gentle friction with belladonna liniment. For several months there was no change, and preparations were being made for her removal to the Longmore Hospital, when he persuaded his friend and former house-physician, *Dr Laing*, who was studying treatment by massage, to take her in hand. He began to manipulate individual and groups of muscles, at first very gently, rubbing in the direction of the blood current, moving the joints and the limbs, and getting the patient herself to assist in moving them also. In a short time she began to show marked improvement. The limbs in-

creased in bulk, the skin began to look more healthy. Then she began to move with ease, and now she could walk about with some briskness.

3. *Dr Allan Jamieson* exhibited a case of LUPUS ERYTHEMATOSUS in its more purely erythematous form, resembling in its extensive diffusion one which he had shown to the Society ten years before, but which was less superficial. Mrs P., 35, lives in Staffordshire, and enjoys very fair health. Six years since the disease appeared on the forehead and on the sides of the face, but entirely faded during an attack of acute rheumatism. It next showed itself on the arms, not on the face; vanished during pregnancy, to return on the arms again after her confinement. It again disappeared when she was laid up with pneumonia, but when she became well it recurred on the arms, and six months ago returned to its original starting-point—the face. The forehead and face, the sides of the neck, upper part of the chest, backs of the hands and forearms, are affected with a symmetrically disposed bright red eruption, dry in character, slightly elevated at the margins, which are well defined, particularly on the arms. On the face the central portions are somewhat rough and scaly, as if the surface had been dusted over with powder. Some faint scars are visible at the sides of the root of the nose. The complaint once invaded the feet, but does not at present implicate these parts.

III. ORIGINAL COMMUNICATION.

Dr Peel Ritchie read NOTES ON REPORT OF THE DEPARTMENTAL COMMITTEE APPOINTED TO INQUIRE INTO PLEURO-PNEUMONIA AND TUBERCULOSIS IN THE UNITED KINGDOM, which will appear in a future number of this Journal.

The President said that the Society was much indebted to Dr Ritchie not only for the paper just read, but for the services there alluded to, and which had been rendered the Society by Dr Ritchie in conjunction with so able an authority as Dr Littlejohn, both of whom had acted as its representatives before the committee in London. In doing so he wished to state at this, the first meeting of the session, that while a paper of this kind might be considered as partaking to a considerable extent of the nature of a report, and consequently, perhaps, be regarded as not quite so apposite for discussion, there were others every session, of which a due advantage did not seem to be taken by the Society, either in the attendance of its older, or the work of its younger members. It was very important that an interchange of opinions should take place at these meetings; that every member should offer what information he could; that original views should be promulgated, and mutual instruction be promoted in every possible manner. Now these objects could not be adequately or properly attained where the discussion devolved, meeting after meeting, upon the same few members; and he would earnestly impress

upon those attending the Society the necessity and the propriety of their coming prepared to offer such remarks, or make such suggestions, or put such questions without wandering from the point, as occurred to them after the reading of papers, and that without hesitation. It was probable that more time would now be afforded for such discussions or conversational debates, as it was under the consideration of the Council at present to require very lengthy papers to be condensed in their being read before the Society. Any remarks or discussion upon patients introduced or specimens exhibited must be, and had always been, necessarily limited; but he thought it most desirable that the number of speakers upon the ordinary communications should be much more generally distributed among the members than was at present the case. He would be glad to hear any remarks on Dr Ritchie's paper.

BRITISH LARYNGOLOGICAL AND RHINOLOGICAL ASSOCIATION.

SESSION I.—MEETING I.

14th November 1888.—SIR MORELL MACKENZIE, *President, in the Chair.*

I. *The President* showed a man suffering from a FIBRO-CYSTIC TUMOUR growing from the right side of the pharynx. The pedicle was so long that the tumour could be projected out of the mouth.

II. *Mr Lennox Browne, Dr Orwin, and Dr Dundas Grant* showed specimens of LARYNGEAL PAPILLOMA, EPITHELIOMA OF LARYNX, EPITHELIOMA OF ŒSOPHAGUS, SARCOMA OF PAROTID, LARYNGOPHARYNGEAL CANCER AND THYROID ISTHMUS, and MICROSCOPIC SECTIONS, prepared by Dr Walter Fowler.

III. *Dr Norris Wolfenden* showed several drawings of microscopic sections of LARYNGEAL NEOPLASMS.

IV. *Sir Morell Mackenzie* delivered the PRESIDENTIAL ADDRESS, in which he reviewed the progress of laryngology since the introduction of the laryngoscope.

V. *Dr McIntyre* introduced a discussion on THE TREATMENT OF NERVOUS DISEASES OF THE THROAT.

Dr Ellis was thoroughly convinced of the value of electrical treatment in the aphonia occurring in young women between seventeen and twenty-five.

Mr Lennox Browne did not think that the effects of the current in cases of so-called hysterical aphonia was a moral one, though this was believed by many. The treatment was more efficacious when applied directly to the interior of the larynx. Sometimes aphonia was simulated by malingerers, in which case a strong current was of great value.

Dr Dundas Grant considered that the effect produced by the faradic current was not so likely to be closure of the glottis as dilatation, because the posterior crico-arytenoid muscles are more likely to be stimulated than the lateral. The effect was, therefore, moral rather than otherwise; and cases which required this treatment should be carefully discriminated, as unsuitable ones (*e.g.*, those in which there was some thickening) often had matters made worse instead of better by faradism. He thought that electricity should be more perseveringly tried in myopathic wasting of the abductors of the cords.

Mr Mark Hovell said many cases of aphonia were cured by the internal application of electricity where the external had failed. In myopathic wasting, the combined current was better than either the continuous or interrupted applied singly.

Dr Milligan thought the chemical and resolvent effects of the combined current were beneficial in many cases in which faradism failed.

Mr G. Stoker believed that benefit was obtained in cases of simple pharyngitis by the application of either the continuous or interrupted current. He did not agree as to the chemical and resolvent effects, but believed they were able to exert considerable influence on the vaso-motor system by irritating the ends of the fifth nerve.

Dr Norris Wolfenden had had some success in treating obstinate dry catarrh of the naso-pharynx with the continuous current. He found that it did best when applied in a mild form frequently and for only a few minutes at a time. He did not think they were yet in a position to hold the theory that stimulation of the fifth or any other nerve influenced the vaso-motor system.

VI. *Dr Dundas Grant* introduced a discussion on ANOSMIA, reviewing the various causes, local and central, of the affection.

Mr Lennox Browne related a case in which the sense of smell returned after abscission of the uvula, and another of coryza caseosa in which the loss was restored by removal of the putrid material and application of galvano-cautery. It was astonishing how many cases of polypi retained their sense of smell. He believed this was due to the moisture. In atrophic rhinitis the loss of smell was one of the usual symptoms. Where the smell was absent in acute cases, he believed it was not the moisture, but the tumefaction, that was the cause. He had seen a few cases in which the application of cocaine seemed to have brought about a diminution in the sense of smell.

Dr Milligan related the case of a lady who, after being cured of menorrhagia and hæmorrhoids, suffered from a nasal discharge, which continued for some months in spite of treatment, until a feast of mackerel brought on an attack of diarrhoea, after which the nasal trouble ceased.

Dr Greville Macdonald was led, from clinical observation, to think

that the middle turbinated body was specially reserved for the sense of smell, while the superior was rather for the sense of taste or flavours. He had two cases of polypi in which the middle turbinated body was affected; the upper and lower surfaces in one instance, the lower alone in the other. In both the sense of smell was lost, though the taste was unimpaired. Bad odours could be tasted, but not smelt.

Dr Warden related a case of perversion of the senses of smell and taste in a neurotic lady. She became very ill, suffering from diarrhoea and sickness, after exposure to a disagreeable odour.

The President recalled a case similar to *Dr Warden's*, in which there was a great horror of the smell of meat, and violets had an effect like sulphuretted hydrogen. He had also observed in one instance a return of the sense of smell after removal of the tip of the uvula.

VII. *Dr Hunter Mackenzie* read a paper on THE INFLUENCE OF CERTAIN MEDICAL AGENTS ON THE BACILLUS OF TUBERCLE IN MAN, which will appear in a future number of this Journal.

VIII. *Dr Norris Wolfenden* read a paper on CANCER OF THE THYROID GLANDS. He thought this condition might sometimes originate in benign growths. The symptoms were not very definite at an early period of the case. The most reliable were pain on pressure; adhesions, especially if to such an extent as to cause complete immobility on swallowing; constriction of the oesophagus; and deglutition pains, along with a growing tumour. As to treatment, this at present could only be palliative. Tracheotomy appeared to precipitate the end. Extirpation was of no use, as before the diagnosis was established metastasis had usually occurred.

IX. *Dr J. M. Hunt* read a paper on A CASE OF NASAL CALCULUS, and showed the specimen.

Dr Bendaleck, of Leeds, sent a nasal calculus for exhibition in connexion with this case, the nucleus being formed by a fragment of a feeding-bottle.

X. *Dr Greville Macdonald* read a paper on THE PHYSICS OF CERTAIN NOSE AND THROAT DISEASES.

ROYAL MEDICAL SOCIETY.

Oct. 26th.—First meeting of the one hundred and fifty-second Session—G. O. C. Mackness, M.B., in the Chair. The Inaugural Address was delivered by *Professor Greenfield* before a large concourse of students and practitioners.

Nov. 2nd.—H. H. Littlejohn, M.B., in the Chair. *J. K. Tomory, M.B.*, read a communication on Tropical Malaria, with special reference to its *Ætiology* and Treatment. *J. Musgrove, M.D.*, read a dissertation on Surgical Bacteriology.

Nov. 9th.—A. L. Gillespie, M.B., in the Chair. *H. H. Littlejohn, M.B.*, delivered his Presidential Address. *A. L. Gillespie, M.B.*, showed a patient admitted to Ward VI., R.E.I., on 21st October, in a markedly cataleptic condition. There was general cutaneous hyperæsthesia, which disappeared temporarily in any part that was made cataleptic. He had recurring utterances, the first answer being repeated to any subsequent question for a considerable time. He suffered from “lightning” pains in his legs, a girdle pain round the abdomen, and exhibited absence of knee-jerk, inability to stand with eyes closed and feet together, and an ataxic gait. Patient was improving under no treatment. *A. L. Turner* read a dissertation on Hay Fever.

Nov. 16th.—R. Abernethy, M.B., in the Chair. *A. L. Gillespie, M.B.*, delivered his Presidential Address. *D. W. K. Lyall* read a communication on a case of Epithelioma of the Tongue, for which partial excision had been performed. The disease recurred, and the case terminated fatally by hæmorrhage. *R. Abernethy, M.B.*, communicated a case of Perineal Abscess with retention of urine. *F. D. Boyd, M.B.*, communicated a fatal case of Syphilitic Disease of the Larynx, in which tracheotomy had been performed for œdema glottidis, and showed the specimens.

Part Fourth.

PERISCOPE.

MONTHLY REPORT ON THE PROGRESS OF THERAPEUTICS.

By WILLIAM CRAIG, M.D., F.R.S.E., Lecturer on Materia Medica, Edinburgh School of Medicine, etc., etc.

SULPHONAL.—Dr Hilsmann writes in the *Gazette Hebdomadaire des Sciences Médicales*, September 1888, that he has recently had occasion to employ this new hypnotic in several patients already accustomed to the use of morphine, chloral, paraldehyde, and methylal, and has obtained satisfactory results. In one phthisical case who was unable to sleep on account of violent cough, sulphonal, in a dose of 15 grains, produced tranquil sleep of eight hours' duration, and the next day the patient's condition was greatly improved. The effect of sulphonal is ordinarily produced one or two hours after its administration, and although it acts less rapidly than morphine, its action is quite sustained, and where it is simply desired to produce sleep it may advantageously replace morphine. Dr Hilsmann mentions a case of heart disease, accompanied by uterine pains and loss of blood, in which sulphonal produced natural sleep. Another case, 70 years of age, suffering from endoarteritis senilis, accompanied by paroxysmal pains, in which both morphine and antipyrin

had failed to give relief, sulphonal rapidly relieved the pain, and sleep was produced.—*Therapeutic Gazette*, October 1888.

CASCARA SAGRADA IN RHEUMATISM.—In a recent number of the *Gazette* reference was made to the fact that cascara sagrada will frequently cure rheumatism, even after salicylate of sodium has failed. Mr Jas. P. Martin suggests, in the *Lancet* for September 1888, the union of these two remedies, since their mixtures are perfectly clear and not at all unpleasant to the taste. He recommends the administration of 15 grains of the salt and 10 minims of the fluid extract in orange-flower water every three or four hours.—*Therapeutic Gazette*, October 1888.

COFFEE AS A VEHICLE FOR ANTIPYRIN.—Dr R. L. Batterbury, in the *British Medical Journal* of 27th October, states that coffee almost entirely disguises the disagreeable taste of antipyrin. He recommends it "to be added to a cup of coffee, made with milk and sugar in the ordinary way." In this way, he says, "the mixture may be drunk without tasting the drug."

ANTIPYRIN IN THE TREATMENT OF MALARIAL FEVERS.—In the *Gazette Hebdomadaire des Sciences Médicales* of August 11, 1888, Dr P. S. Pampoukis refers to the general employment in Greece of antipyrin in the treatment of malarial fevers. He states that it is the general experience that the use of antipyrin in intermittent fever is quite comparable to quinine, and many cases that have become habituated to the use of the latter drug have been completely cured through treatment with antipyrin of only five days' duration. The author, and numerous colleagues to whom he refers, have found that with the absorption of antipyrin the fever, even when the temperature was as high as 105° F., rapidly disappeared. Antipyrin has likewise been given during the chill, and has succeeded in arresting the fever. It does not appear clear, however, that antipyrin will prevent the recurrence of the chills, although several authorities claim this result. The majority, however, recommend the administration of antipyrin during the fever, and the use of quinine during the intermissions. — *Therapeutic Gazette*, October 1888.

A NEW METHOD OF PRODUCING NARCOSIS.—Professor Ohalinski proposes the addition of cocaine to chloroform in the production of anæsthesia (*Journal de Médecine de Paris*, August 12, 1888). His method is to produce moderate narcosis by the inhalation of a small quantity of chloroform, and then to inject $\frac{1}{2}$ to $\frac{3}{4}$ grain of cocaine under the skin in the locality where it is proposed to operate. No fear, according to the author, need be experienced from a large dose, for he claims that chloroform is an antidote to cocaine, and that during the operation a part of the cocaine is eliminated. After this injection, no more chloroform is given, unless the operation is a prolonged one, when a small quantity may be required at long

intervals. The author states that he has employed this procedure in a large number of capital operations, and that it has appeared to him to possess really marked advantages. In a case of amputation of the thigh, he employed in the production of anæsthesia only about 2 drachms of chloroform by inhalation, and more than 1 grain of cocaine hypodermically. The operation was completed in twenty minutes, and the anæsthesia was prolonged by the administration of 2 drachms more of chloroform. The pulse, which before the operation was feeble, 120 in a minute, after the injection of cocaine improved in strength, and was reduced to 84 in a minute. The pupils, first moderately dilated, passed into contraction, and so remained up to the end of the operation. The respiratory movements, 30 in a minute, were increased to 48. Anæsthesia was complete, and no vomiting occurred in the recovery of consciousness. Other cases are reported in which excellent results were likewise obtained by this method; and the author concludes that—1. This method unites all the advantages of chloroform anæsthesia, combined with the local anæsthesia produced by cocaine. 2. That vomiting is of rare occurrence after the employment of cocaine. 3. Consciousness is regained more easily, and general sickness is much less pronounced. The only disagreeable effect which this method may produce, and which is rare, and only seen in extremely nervous individuals, is a condition of great excitement, manifested by cries and tetanic contraction of the muscles. As, however, this effect is sometimes produced by chloroform alone, he does not think that it can be attributed to the combination of cocaine with chloroform.—*Therapeutic Gazette*, October 1888.

GELSEMIUM SEMPERVIRENS.—In the *Boston Medical and Surgical Journal* for September 13, 1888, Dr G. M. Garland refers to a number of conditions in which he has found gelsemium sempervirens useful for mitigating suffering and correcting perverted nervous functions. Foremost among such conditions comes hysteria; and the author states that in the crises of cerebral excitement, which were formerly combated by asafoetida and valerian, he knows of no drug which can excel gelsemium sempervirens. Inasmuch as it affects the motor regions of the nervous system before the sensory, it is usually necessary to push its administration until diplopia and heaviness of the lids appear, in order to reach satisfactory results. Again, as a remedy for certain kinds of headache, gelsemium sempervirens has no rival. Catarrhal headaches, and those which accompany dysmenorrhœa and nervous debility from overwork, are amenable to gelsemium sempervirens. According to Dr Garland, this drug will also overcome neuralgias of the superior branch of the fifth pair when they are not referred to neighbouring inflammatory or irritated conditions. The headaches of Bright's disease may be mitigated by gelsemium sempervirens, but its use is of no value in ordinary or bilious sick headaches. In the early

stages of acute bronchitis, when the cough is disturbing and the bronchial tubes are dry, and when there is pain across the chest, gelsemium sempervirens will relieve this distress, and start up the bronchial secretions. Under certain conditions, gelsemium is a diaphoretic; and in follicular tonsillitis, accompanied by soreness of the throat, high fever, neuralgic pains in the head, back, and legs, all these discomforts will abate rapidly with the diaphoresis induced by gelsemium. In such cases Dr Garland covers the patient with blankets, and gives him 3 to 5 drops of gelsemium sempervirens every hour until he sweats or has taken from 15 to 20 drops. The relief to the suffering is rapid, and the patient usually sleeps while he sweats. Acute muscular rheumatism is also amenable to this kind of treatment. Other uses for which gelsemium sempervirens has been recommended are to replace quinine in the treatment of malarial fever, $\frac{1}{4}$ to $\frac{1}{2}$ drop doses of the fluid extract being given every twenty minutes, beginning before the expected chill. Small doses of gelsemium sempervirens have also been recommended to soften a rigid, unyielding os, and it is further stated that fractional drop doses at frequent intervals will diminish after-pains; further, gelsemium sempervirens may be combined with quinine to correct the ringing in the ears and headache which the latter causes. The dose of gelsemium depends upon the preparation used and the effect which one desires to obtain. For the relief of neuralgia, one should give 3 to 5 drops every half-hour or hour, according to the intensity of the pain. To produce sweating, 1 drop every half-hour is sufficient, provided the patient be well wrapped up in bed; 1 drop of the fluid extract will relieve the cough and discomfort of acute bronchitis; the tincture of gelsemium sempervirens is slightly weaker than the fluid extract. The advantages which gelsemium sempervirens can legitimately claim, according to Dr Garland, are:—1. It has an agreeable taste, and it is not repulsive to adult or child. 2. It does not irritate the stomach or bowels. 3. It produces no depressing after-effects from ordinary doses; the sleep is natural, and the patient awakens refreshed. 4. In ordinary doses it causes no depression of the heart, and it can be used in all forms of organic disease of the heart. 5. It does not create a habit. There is no depression of nerve-centres following its use, and therefore no craving for more of it. 6. Its toxic symptoms are very characteristic and striking, and they appear early, so that plenty of warning is given. Morphine is the best antidote, combined with digitalis and artificial respiration.—*Therapeutic Gazette*, October 1888.

ANTHRAROBIN.—At the meeting of the American Dermatological Society, held in Washington, September 18, 1888, Dr E. B. Bronson of New York read a paper upon the use of the new remedy, anthrarobin, in dermatological practice (*Medical Record*, September 22, 1888). The drug was first introduced by Liebermann, a Berlin

chemist, and recommended as a substitute for chrysarobin and pyrogallie acid, being, like them, a powerful deoxidizing agent. It is a yellowish-white, granular powder, sparingly soluble in alcohol and weak alkaline solutions. It mixes readily with fats to form ointments. Behrend has had satisfactory clinical results from its use in psoriasis, herpes tonsurans, etc. Dr Bronson has used the new remedy for the past few months, and tested its virtues in a variety of skin affections, using, as a rule, a 10 per cent. ointment in vaseline. In eight cases of generalized psoriasis apparent cure took place in about a month. In one case, remaining under observation for a few weeks, some guttate spots returned upon the back. The staining produced upon the skin is much deeper than that from chrysarobin, but does not diffuse itself over the surrounding skin, as is the case with the latter drug. Scarcely any irritation was produced. In eczema a slight smarting sensation was produced at first. The 20 per cent. ointment did cause smarting. In one case of general eczema its use was abandoned because of the itching complained of. A case of eczema seborrhoicum of many years standing, upon which a great variety of treatment had failed to do more than ameliorate the condition, was much improved after a few days' use of the 10 per cent. anthrarobin tincture. Little or no antipruritic was noted, and no opportunity occurred to try it upon parasitic diseases. The remedy is believed to have parasitic as well as keratoplastic properties, and there is reason to hope that the new remedy may render considerable service.—*Therapeutic Gazette*, October 1888.

MEDICAL PERISCOPE.

By FRANCIS TROUP, M.D.

Berlin. Klin. Wochenschr., No. 35, 1888.—Driver of Reiboldsgrün gives his experience of the value of kreosote in the treatment of phthisis. From 1883 to 1885 he prescribed this drug to a large number of consumptives in his sanatorium. He gave it in alcoholic solution and in capsules with tolu balsam, and he thus summarizes his experiences:—

1. Kreosote is generally well borne if begun in small doses, well diluted, and given after meals. There was less complaint about the solution than the capsules after the patient had got accustomed to the taste of the drug. Indeed, many felt it a necessity to have it, just as children come to like cod-liver oil.

2. Appetite and digestion were invariably favourably influenced, particularly if abnormal fermentative processes were at work in stomach or bowels. A tubercular diarrhoea, however, was as rebellious to kreosote treatment as to every other.

3. No unequivocal influence of the kreosote over the tubercular fever could be observed at any time or in any case.

4. The tubercular lung affection was also uninfluenced, save as a

consequence of the better body nourishment which the kreosote initiated. It never happened to Driver, except in a certain category of cases, that he could demonstrate that any seeming betterness of the general symptoms, subjective or objective, was due to the kreosote, and not rather to the other hygienic and dietetic treatment to which his patients were subjected, viz., *intensive* nourishment, open air, and care of the skin.

5. The sole exception to this was found in the cases of phthisis, which have undoubted scrofula at bottom, but only that form of scrofula which, in contrast to the "erethitic," is called "torpid;" such cases are the only ones where kreosote may benefit. Individuals attacked by this torpid scrofulous phthisis, especially young persons, commonly show, in spite of defective, often perverse, appetite, a well-developed subcutaneous cushion of fat and weak musculature, little irritative cough, with, generally, much expectoration, and, notwithstanding much lung destruction, little tendency to fever and night sweats; besides bad digestion, constipation, and so forth, and for the rest show the well-known picture of torpid scrofula. Driver has seen in this sort of patient, often from the first dose of kreosote, a total change in all the morbid phenomena. These patients are also those who like the kreosote and can bear it continuously in large doses, and to this class, he thinks, the drug will ultimately be limited. Prescribers should individualize their cases more, and not feed indiscriminately each consumptive who falls into their hands with kreosote, so that the drug may not be discredited.

Ibidem, No. 38.—In ascites the result of liver cirrhosis, calomel and digitalis are highly recommended by Dr Schwass of the Augusta Hospital in Berlin. If the disease has not lasted too long, and if there are no complications in other organs, it is almost certain that their use will bring about a cure more or less permanent. Tapping, where effusion is very large, may usefully precede the medication, as compression of the ureters by the fluid interferes with the diuresis occasioned by the calomel and digitalis.

Ibidem, No. 39.—Hess of Hamburg uses subcutaneous injections of 50 per cent. watery solution of antipyrin in cases of rheumatism and neuralgia, and for the pains of tabes and gout. He finds—

1. Antipyrin subcutaneously injected relieves pain very speedily, and seems to fail only in old hysterical cases, where, indeed, nothing seems to be of use.

2. It operates not only in peripheral rheumatic neuralgic cases, but influences the pains of central (spinal) affections.

3. The duration of its action is diverse, and seems to be longest in muscular rheumatism, whilst in neuralgia it is less durable.

4. It is possible that, besides its anodyne operation in rheumatism, it may have some specific action.

5. It seems therefore desirable to inject where the pain is felt.

Hess has never seen any evil results follow the injection, but

confesses that in almost every case there were loud complaints of the pain it occasions when given. The cold solution is better borne than a warm one. He has never seen reactive inflammation or abscess occur at the spot of puncture; at most, an erythema and transient tension of the part.

PERISCOPE OF GYNÆCOLOGY AND MIDWIFERY.

By J. MILNE CHAPMAN, M.D., Inverness.

PROCEEDINGS OF THE AMERICAN GYNÆCOLOGICAL SOCIETY.

MEETINGS HELD AT WASHINGTON, SEPTEMBER 1888.

PALPATION OF THE URETERS IN THE FEMALE.—Dr Howard A. Kelly, Philadelphia, first pointed out the importance of examining the ureters in all bladder cases, and the value of the information so obtained; also how the lodgment of calculi could be detected by palpation, thus leaving no room for doubt as to the diagnosis of a condition which may be suspected. He described the various methods used for exploring the ureters, his own especially in detail. Drs Polk, Byford, Baker, Coe, and Bache-Emmet spoke on the paper, and generally concurred as to the utility of such explorations and the ease with which they could be made.

THE CAUSE AND TREATMENT OF URETHROCELE.—A paper by Dr Thomas Addis Emmet was read, in which it was stated that this condition did not depend upon a want of support of the tissues, but that it was always associated with injury; also that it nearly always exists where there is extensive lacerations of the cervix. He described the special circumstances under which its occurrence is liable, and for its treatment recommended the "button-hole" operation, as described in his text-book. The opinions of the various speakers were not unanimous as to Dr Emmet's propositions, but there was general commendation of the value of the operation referred to.

THE TREATMENT OF PELVIC ABSCESS.—Dr Stanbury Sutton, of Pittsburg, read a paper on this subject. The surgical procedure recommended by him consists of opening the abscess, per vaginam, draining, and subsequently curetting. In the discussion, Goodell laid stress on the importance of substituting a vaginal opening for a rectal one when the latter has formed. Along with the majority of the other speakers, including Thomas, he homologated Dr Sutton's advice as to operating from the vagina, but Drs Gill Wylie and Polk emphatically asserted that such abscesses depend upon tubal disease, and demand abdominal section for their complete relief.

SECOND OVARIOTOMY ON THE SAME PATIENT.—Sir Spencer Wells read a paper on this question. Drs Thomas and Goodell expressed the opinion that when there was doubt as to the advis-

ability or otherwise of removing the second ovary it should be removed, and not given a chance, as recommended by Wells.

THE NEW CÆSAREAN SECTION.—Lusk, in the course of his paper, said that when the facilities for performing Cæsarean section are not the best, to attempt it is gambling with life; also, that Sænger's operation, under the most favourable circumstances, promises recovery; under ordinary circumstances it is attempting a miracle. In the discussion which followed these views were accepted, and there was a general feeling that under ordinary circumstances craniotomy was the preferable course.

THE ETIOLOGY, PATHOLOGY, AND TREATMENT OF ANTEFLEXION OF THE UTERUS.—In this paper Dr Gaillard Thomas advocated the use of such pessaries as his own or Graily Hewitt's, as also of intrauterine stems of glass. In the discussion he was supported by Graily Hewitt and others, while the opposite view of this question found advocates in Priestley, Bache-Emmet, and Goodell, while Van de Warker alluded to Dr Thomas's change of opinion regarding the use of the stem pessary, which Thomas admitted, and attributed to what he had gained by an extended observation of such cases.

HIGH AMPUTATION OF THE UTERUS FOR CANCER.—Dr Reamy related that he had operated in many cases, but that in 57 the disease had not extended beyond the cervix. Of these 2 died as a result of operation; while of the others, in 26 the disease had shown no signs of recurrence after periods ranging from one to fifteen years. In this discussion the general consensus of opinion was in favour of the operation.

THE PRESIDENTIAL ADDRESS was delivered by Dr Battey, of Rome, Georgia, and was devoted largely to the condition of the Society. Referring to the question of priority of discovery, of operations, etc., he said that scientific discoveries should be recorded, and that it is to him who does record them that the preference in deciding the right of priority should be given. "It is similar to the finding of a rough diamond by a man who observes it as a pebble and then throws it away, and the recognition of its true worth by a man who polishes the stone and exposes its brilliancy to the world."

THE PRESSURE FORCEPS *versus* THE SUTURE AND THE LIGATURE IN VAGINAL HYSTERECTOMY.—Dr E. G. Dudley, of Chicago, described how he performs this operation, and how he makes use of pressure forceps both to control bleeding and to close the wound, using sometimes as many as twenty forceps in a single operation, and this without any inconvenience. The less important forceps—those on the bloodvessels—are removed in 24 hours; those on the ligaments in 48 or 72 hours. The advantages claimed for the forceps operation are the following:—1. The operation is made

short and simple. 2. Hæmostasis is prompt and reliable. 3. Turning of the cervix into the peritoneal cavity and bringing the corpus uteri into the vagina are not necessary. 4. The sloughing stump, if left in the vaginal wound below the peritoneum, comes away much more quickly, and a clean granulating surface takes the place of a gangrenous wound. 5. Effective drainage is secured by means of the forceps. 6. Convalescence is less complicated. 7. The operation gives promise of reducing the mortality to 4 or 5% or less, as in 20 cases operated on there were only 2 deaths. The discussion which followed showed that the Fellows, though not unanimous in their approval of the operation, recognised that it was feasible and might prove to be valuable.

SPONTANEOUS RUPTURE OF THE UTERUS.—Dr Green, of Boston, related four cases of this accident, and indicated that when it occurred before engagement of the head gastrotomy was the preferable procedure.

SEVERE VOMITING OF PREGNANCY.—Dr Graily Hewitt emphasized the fact that such vomiting was not a natural concomitant of pregnancy, nor, indeed, was any vomiting a constant accompaniment; but that it always depended upon some morbid condition—displacement, etc.—and that the treatment lay in attending to such causes. Dr Hewitt's views were to some extent supported by the speakers on the paper, but did not meet with full acceptance.

TREATMENT OF CHRONIC ENDOMETRITIS BY DRAINAGE WITH GAUZE.—Dr Polk recommended the following procedure:—Anæsthetize the patient; dilate the cervix and the cavity of the uterus; wash out the uterus, using a double catheter; pack, but not tightly, the uterus with strips of iodoform gauze; remove the dressing at the end of 24 hours, washing out the cavity, if necessary, and repack with gauze. Curetting is sometimes necessary and valuable, but drainage and the gauze are usually sufficient. In performing the operation the most careful antisepsis must be employed. Drainage by iodoform gauze is especially valuable in hæmorrhagic forms of endometritis.

THE DANGERS OF GALVANO-PUNCTURE IN PELVIC TUMOURS.—Dr Van de Warker, while avowing himself a disciple of Apostoli, pointed out some grave dangers in his method of treatment, among them a tendency to the development of septic degeneration and a tendency to some change in the composition of fluids, whereby a poison, perhaps septic, perhaps of the nature of ptomaines, was occasionally developed.

THE IMPORTANCE OF THE MICROSCOPE IN THE TREATMENT OF STERILITY IN WOMEN.—Dr H. Marion Sims read a paper with the above title, which led to a discussion of the whole subject on the usual and well-worn lines.

THE INFLUENCE OF PREGNANCY ON PELVIC DISEASE.—Dr Hunter, of New York, pointed out how pregnancy at its various stages affected such diseases as those of the anus, vulva, and vagina, lacerations of the perineum and cervix, and various other pelvic affections.

THE NEW METHODS OF ELECTROTHERAPY IN THEIR BEARINGS ON GYNÆCOLOGICAL SURGERY.—In this paper Dr Englemann stated that he would not recommend electricity as a substitute for surgery in gynæcology, but that he deemed it a most valuable adjuvant; and in the discussion which followed the reading of the paper, there was a feeling expressed that in the meantime too much was being attempted by the use of this method of treatment.

OVARIAN FŒTATION.—Dr Mann, of Buffalo, showed a specimen which he claimed was one of pure ovarian fœtation.

ON THE INDICATIONS FOR PRIMARY LAPAROTOMY IN CASES OF TUBAL PREGNANCY.—Dr Janvrin, of New York, in this paper dwelt on the paramount importance of early diagnosis, and gave it as his opinion that immediately a diagnosis was at all certain abdominal section should be performed, and no time lost over attempts to check the growth of the ovum by electrolysis.

THE EARLY DIAGNOSIS OF ECTOPIC PREGNANCY AND ITS TREATMENT, WITH REPORTS OF TWO CASES.—Dr Hanks, of New York, who read this paper, stated that the following rules should be followed in order to decide whether electricity or laparotomy should be employed:—1. If the diagnosis is made in the first four months of pregnancy, and the symptoms are only those of primary rupture, use electricity. 2. If pregnancy has advanced beyond the fourth month, perform laparotomy. 3. If the symptoms are in any stage severe, perform laparotomy. 4. After the fifth month, if the symptoms are not severe, delay in hope of saving the child is justifiable. 5. If the fœtus is dead, immediate laparotomy is indicated. In the discussion which followed there was considerable diversity of opinion regarding the relative merits of the two plans of treatment. Referring to Dr Mann's specimen, Dr Johnstone, of Danville, gave it as his decided opinion that it was a small dermoid cyst and not a pregnancy at all.

OCCASIONAL PERISCOPE OF DERMATOLOGY.

By W. ALLAN JAMIESON, M.D., F.R.C.P., Extra Physician for Diseases of the Skin, Edinburgh Royal Infirmary; Lecturer on Diseases of the Skin, Edinburgh School of Medicine.

TO REMOVE CORNS OR CALLOSITIES FROM THE SOLE.—Unna observes that the treatment of subplantar corns is very much facilitated by a judicious combination of salicylic plaster and

glycerine jelly. A ring of glycerine jelly about the diameter of the wart is painted round it with a fine but stiff bristle paint brush. When this ring of jelly has quite set and become dry, a circular piece of the strongest salicylic plaster muslin (salicylic 40, creasote 40) is cut sufficiently large to fit within the ring of jelly; jelly is now painted over the ring of jelly already made, and the piece of plaster itself; and to make assurance doubly sure, a third coat of jelly should be painted widely over all; and when these have become almost dry, a layer of cotton wool is to be placed and pressed on. The larger the surface covered with the jelly the less the local pressure on the corn. In the case of feet which perspire much, and particularly in hot weather, a single turn of a soft muslin bandage should be folded round the affected part of the foot, before the jelly has become quite dry, covered with a coating of jelly and then with wool, or the coating of jelly itself, and the neighbouring part of the foot is painted with flexible collodion. In this way one can, even in the heat of summer and in those whose feet sweat freely, keep the plaster in position. The dressing is changed when it becomes spontaneously loose, at the oftenest once or twice a week, the horny layer acted on by the salicylic acid is removed, and a new dressing applied; and this had better be continued for some time after the wart has been cured.—*Monatshefte für praktische Dermatologie*, No. 13, 1888.

FROM an interesting review of 6724 cases of skin disease which occurred in the practice of Dr W. A. Hardaway of St Louis, the following items of more than average importance are worth extracting:—Among the cases of bromidrosis, he met with one patient who exhaled a most decided odour of violets. The man was in otherwise good health, and this condition persisted for at least a month before disappearing. He recommends electrolysis as the best treatment in cases of milium. In erysipelas, the application that has proved most satisfactory in his hands, and which seemed to afford the speediest relief, was—

R	Ichthyol,	1·0
	Etheris,	1·0
	Collodii flexilis,	2·0
	Apply with a camel's hair brush.	

He mentions an instance of what has been called chronic zoster. The patient was an old gentleman who suffered from constantly recurring vesicles, which made their appearance on both sides of the neck. The lesions were arranged just as in herpes zoster, and the subjective symptoms were similar. He has seen several cases of psoriasis in which scarlet fever seemed to be the exciting cause, for the eruption appeared directly after an attack. He has known psoriasis to develop for the first time at the age of 68. It is often the case that psoriasis is brought into existence by purely local

irritations. This is probably the reason of its development after the inflammatory changes in the skin in scarlatina. Its favourite location on the elbows and knees is perhaps brought about in the same way. In place of the white precipitate salve commonly employed for psoriasis of the face, he thinks he has secured better results from an ointment made of 1 drachm of sulphur and 1 scruple of salicylic acid to the ounce of cold cream. This combination is also of value on the scalp. He is of opinion that in all likelihood exfoliative dermatitis, so-called pityriasis rubra, and pemphigus foliaceus, are all various degrees of the same pathological state. He cites an instance of the latter, in which in its last stages, after the evolution of the bullæ had ceased, there was no perceptible difference in the red exfoliating skin, as compared with a typical example of pityriasis rubra which happened to be under his care at the same time, and indeed without the previous history of the bullous stage it was doubtful if the most acute diagnostician could have established the clinical distinction between the two. Pruritus acknowledges a wide etiology, and therefore may be dependent upon a host of conditions, internal and external; but among the most interesting factors in the production of this disorder is the influence of atmospheric states. Some years ago Duhring called attention to the prevalence of a certain well-defined form of pruritus occurring in winter. Regularly every year Hardaway sees a number of people suffering from marked itching of the skin, which only abates, except as modified by treatment, upon the coming in of the warm season. The supposed contagious itching disease met with in the western states, and variously termed "prairie itch," the "Texas scratches," etc., is, he believes, not an epidemic cutaneous affection due to some well-defined and uniform cause, parasitic or otherwise, but rather a complex of states made up largely of pruritus hiemalis, papular eczema, and scabies. He renews his previous recommendation of the spray as a mode of employing remedies, especially carbolic acid, in the treatment of itching affections generally.—*St Louis Courier of Medicine*, May 1888.

TREATMENT OF LEUKOPLAKIA BUCCALIS.—This can only be taken up on the practical side. Unna thinks with Schwimmer that numerous examples occur in which, apart from any previous constitutional syphilis, white patches form on the mucous membrane of the lips, cheek, and tongue, which feel hard, are painless, and are either on a level with the surface, or may project above it. Syphilis, however, whether cured or still persisting, most markedly increases the tendency to the production of such patches; and smoking has the greatest effect, in persons so predisposed, in developing them, which accounts for the rarity of the affection in women. A question of practical value is the curability of leukoplakia by anti-syphilitic remedies. Even where syphilis has preceded, this cannot be regarded as a true

specific ailment. Syphilis predisposes the mucous membrane of the mouth, as it does other tissues, to certain new disorders, which, however, always require a fresh etiological impetus to call them forth. Tabes affords the best example of such post-syphilitic affections. Just as the nervous system needs certain excitants, as a chill, over-exertion, and the like, so does the mucous membrane of the mouth demand local irritants, as bad teeth, insufficient cleanliness, but, particularly, the immoderate use of tobacco. With this view the fact agrees, that only a local, well-directed, and persevering treatment is able to ameliorate this obstinate complaint, or in some very favourable instances to remove it. Unna can recall only one example of extensive leukoplakia of the tongue, in which the use of chrome solution—regarded by some as an anti-syphilitic remedy—with entire cessation of smoking, led to almost entire cure. From his personal experience, he recommends the following treatment:—He regards the concentrated solution of chromic acid in water as the best caustic. When energetic treatment is desired, superficial cauterization with Paquelin is recommended, with subsequent application to the peeling surfaces of a weak solution of chromic acid or of nitrate of silver. Iodoform, corrosive sublimate, and nitrate of silver alone, have given him no satisfactory results. He is of opinion that leukoplakia linguæ does indeed predispose to cancer, but only in those severe and neglected cases in which extensive fissuring has gradually occurred. He does not believe in the direct transformation of leukoplakia into cancer, but only in a relationship of such a kind, that the cracks in the mucous membrane, constantly irritated by the movements of the tongue, by the secretions of the mouth, and by food, and in themselves painful, serve as starting points for cancer. He considers the due care of leukoplakia as essential to the prophylaxis of cancer of the tongue. —*Monatshefte für praktische Dermatologie*, No. 14, 1888.

ON SOAPS CONTAINING SALTS FROM MINERAL SPRINGS.—As such soaps have been pretty largely advertised of late, it may be interesting to quote the following remarks made by Unna in answer to some questions addressed to him. A correspondent asks, Do you regard it as practically possible, and as scientifically correct, to incorporate salts with soap, and, in particular, such as are used for baths, which are contained in brine and mother-liquor? Do you believe, were the difficulties in the way of producing such a soap overcome, such would effect important results in the treatment of skin diseases? Unna replies, it is not impossible to incorporate with a soap common salt and other neutral salts in considerable quantity. Indeed, such a soap has been long known in commerce, one in which the solution of salt, employed to separate the granular soap when a ley from cocoa-nut oil has been used, is absorbed directly into the soap; such soaps filled with salt solution belong

naturally to the worst conceivable kinds, those quite unsuitable for toilet use, far less to be the basis of a medicinal soap. If, instead of the gelatinized soap-ley from cocoa-nut oil, a soap-ley from tallow or any other animal fat is taken, a quantity of dry salts (common salt, soda, iodide of sodium, of potassium) can be incorporated with the soap. Such are, however, more than soaps. But if you ask me if I attach a high value to these soaps in the treatment of skin diseases, I must reply that the form of soap is for the aforesaid salts scientifically and practically irrational. Any one who has incidentally washed himself with soap in sea water must have noticed with what difficulty a good soap lathers in salt water. A natural result; for the salt water constantly anew precipitates the soap which it dissolves. An exactly similar struggle arises between salt and soap by the solution of salt-containing soap upon the skin. In such circumstances neither soap nor salt obtain justice. The good (neutral) soap does not, for it neither lathers nor penetrates sufficiently; the salt, on the other hand, would act much better on the skin if the latter were first deprived of fat by means of soap, rinsed, and then treated with the salt. The same holds good for such salts of the alkalies as are not decomposed by soap, as iodide and bromide of sodium, etc. It would be much more interesting and valuable to incorporate such a salt as chloride of calcium with soap, which, as Lier has recently shown, plays the chief part in the Kreuznach mother-liquor. While the preparation of soaps with the above-mentioned salts is at least possible, a chloride of calcium soap cannot be made. If attempted, we have a lime soap with chloride of sodium or of potassium, instead of the expected suspension of the chloride of calcium, and a soap which will not lather unless we have recourse to the very bad expedient of adding cocoa soap. We cannot therefore obtain the advantages of mineral waters as baths by the use of corresponding salt soaps as substitutes.—*Monatshefte für praktische Dermatologie*, No. 14, 1888.

PECULIAR EYE SYMPTOMS IN ASSOCIATION WITH ERYTHEMA NODOSUM.—Mr Bickle of Mount Barker, South Australia, records several cases in which, during the course of an erythema nodosum, phlyctenulæ appeared on the conjunctivæ, running an acute course and disappearing in about ten days. He had at the time no cases of phlyctenular or catarrhal ophthalmia. He has not found any notice of such a concurrence having been observed before. The sole quotation bearing on it is one from Meyer of Paris, who says, "The concurrent appearance, either before or after its commencement, of cutaneous eruptions of the eyelids or of the surrounding skin, such as eczema or zona, seems to point to phlyctenular conjunctivitis as an exanthematous disease of the mucous membrane depending on the ciliary nerves."—*The Australasian Medical Gazette*, August 1888.

SOLID AND PERSISTING ŒDEMA OF THE EYELIDS AND FACE.—Mr Jonathan Hutchinson has directed attention to a form of persistent symmetrical œdema which disfigures the face, and especially affects the loose tissue beneath the eyes, imparting a swollen aspect to that part of the countenance. It is more common in women than men, and is due to recurring attacks of erysipelas. By erysipelas is meant a special form of inflammation of lymphatic spaces, attended with much œdema, and of very transitory duration, though its consequences may persist. The relationship of this post-erysipelatoid œdema to elephantiasis is very close. Indeed, elephantiasis may be defined as solid œdema and overgrowth consequent upon recurrent attacks of erysipelas. On the face, however, there is not the growth of connective tissue and papillary hypertrophy seen in elephantiasis, there is simply solid œdema. The attacks of erysipelas are in some cases very frequent, and are attended with great swelling, which may close the eyelids for a day or two. The more frequent the attacks the greater the deformity, the longer the interval the more time for progressive improvement. The treatment appropriate to prevent it is the liberal use of tonics, and especially of steel, and careful avoidance of exposure to sudden changes of temperature. [We have found that the administration of ichthyol internally has in some cases stopped, so far as our observations extend, the regular recurrence of these seizures of facial erysipelas.—W. A. J.]—*Illustrated Medical News*, October 20th, 1888.

PERISCOPE OF STATE MEDICINE.

By J. ALLAN GRAY, M.A., M.D. Edin., F.R.C.P.E.

NOXIOUS SALTS OF TIN IN FRUITS PREPARED IN TIN VESSELS.—Dr Leonard W. Sedgwick having been called in October 1886 to treat nine persons simultaneously attacked with watery diarrhœa, sickness, and great abdominal pain, was led, after careful investigation, to attribute the symptoms to the eating of pears stewed in a newly tinned copper-pan, the circumstances precluding the likelihood of other cause of irritant poisoning. Chemical analysis confirmed this opinion, as the juice of pears similarly cooked was found laden with tin salts, but free from copper. This result led the investigator to conclude, "that if the cooking of a somewhat acid fruit for a short time in a tinned vessel effected the formation of a poisonous salt of tin, the keeping of an acid fruit for months in a tin can must have a like result." He therefore tested the contents of cans of apricots, pine-apples, peaches, and tomatoes, and in every instance found a large amount of a salt of tin. Confirmatory evidence of this result was afforded by Mr Hugh Power, who also found in one specimen a salt of zinc. The outcome of this must be that salts of tin other than the chlorides are toxic, and that if pre-

served fruits are to be used, only those preserved in bottles can be recommended.—*Lancet*, vol. i. p. 1129, 1888.

THE SANITARY ARRANGEMENTS OF THE ANCIENT HEBREW CAMP IN THE DESERT AND THE MODERN CITIES OF MANCHESTER, EDINBURGH, AND LIVERPOOL.—In an interesting inaugural address at the Liverpool Medical Institution Dr Birkbeck Nevins glances in detail at the important points in the sanitation of each of these four large communities, differing so widely in their surroundings and other conditions. In explaining the probable causation of some of the Mosaic regulations, he suggests that the prohibition against eating swine may be attributed to the well-known scavenging habits of that animal in the East, while the reason for forbidding the flesh of the bat and mouse may be regarded as “directed against the idolatrous practices of the Zabii (Sabœans), who offered a kind of witches’ broth to the sun, made from ‘seven mice, seven bats, and seven reptiles, with certain other matters’” (Maimonides, *More Nevochim*, chap. iv.). He sees the establishment of “a close season” in the law, which enacts that “If a bird’s nest chance to be before thee in the way, whether there be young ones or eggs, and the dam sitting upon them, thou shalt not take the dam with the young” (Deut. xxii. 6). Admiration is expressed for the Mosaic regulation as to the removal of all solid excreta beyond the camp, and for the disinfectant results obtained from the free use of fragrant terebinthinate woods and incense in the burnt-offerings.

In that portion of the address devoted to Manchester, we are told that the solid refuse and night soil of that inland city is converted into useful and readily saleable products, such as bricks, mortar, disinfecting soap, lubricating oil for machinery, ironwork, and manure sold readily at £3 per ton.

Dr Sedgwick, in conclusion, finds,—That the Hebrew code provided especially for personal purity and cleanliness, for purity and wholesomeness of diet, and for removal and utilization of excreta; and that it was and still is in advance of modern Western civilisation in its employment of disinfectants and in its disposal of the dead. That Manchester has contended successfully against the difficulties arising from its inland position, and has utilized in a remarkable degree materials which have hitherto been almost unmitigated evils. That Edinburgh has utilized its sewerage with unparalleled success by irrigation, and has shown how the domestic pail system and that of water-closets can exist side by side, with little absolute sanitary superiority proved as yet on either side. And that Liverpool has carried out upon an unexampled scale and regardless of expense the experiment of getting rid absolutely of all its refuse, sewage or solid, by availing herself of her proximity to the sea, and with a saving of life to the amount of 7000 lives per annum.—*Liverpool Medical Chirurgical Journal*.

VACCINATION AGAINST TYPHOID FEVER.—“Chautemesse and Vidal

have communicated to the Société de Biologie some interesting observations on vaccination against typhoid fever. They claim that in mice inoculated with cultures of typhoid bacilli, a disease is produced with lesions the same as in human typhoid fever. Mice inoculated with bouillon in which colonies have lived, but which no longer contain the bacilli, resist subsequent inoculation with the most intense typhoid virus. From the large number of observations, this would seem to be well established. On the other hand, mice inoculated with bouillon in which indifferent microbes had grown, such as the bacillus subtilis, did not resist, and were not in the slightest degree protected against the typhoid virus. The saturation of the organism with the soluble chemical substance produced by the typhoid bacillus granted immunity from the effects of the fresh virus. The observations are of value as illustrating the influence of organic substances produced by the growth of bacilli, and they indicate, too, the direction in which we may hope for practical results from bacteriological work."—*Medical News*, vol. vii., No. 13, 1888.

POISONING BY ACONITINE.—An interesting case of fatal poisoning by aconitine is reported, in which the drug was prescribed for a woman suffering from neuralgia. The prescription was as follows:—

Quiniæ sulphat.,	.	.	.	gr. 24
Morph. hydrochlorat.,	.	.	.	gr. $\frac{1}{2}$
Aconitin,	.	.	.	gr. $\frac{3}{100}$

In six wafers.

Death occurred after the sufferer had taken the second dose. Analysis revealed that the wafers each contained $\frac{1}{100}$ of a grain instead of the $\frac{3}{100}$ as directed. This apparently occurred from the dispenser dividing the mass into sixths, instead of dividing each ingredient separately. But as the $\frac{1}{100}$ of a grain is not easily weighed, other therapeutic aids should have been had recourse to. The authorities censured both physician and pharmacist.—*Les Nouveaux Remèdes*, No. 4, 1888.

ASEXUALIZATION AS A PENALTY FOR CRIME.—In a paper read before the Cincinnati Academy of Medicine and reported in the *Medical News* (vol. vii., No. 13, 1888), Dr O. Everts discusses this question at some length. After tracing the methods and purposes of punishment for offences first among undeveloped peoples, and then step by step with the evolution of morals, he offers a proposition, which he formulates as follows:—"Surgical asexualization of all criminals convicted of offences that, circumstantially considered, indicate constitutional depravities that are recognised as transmissible by heredity, is not only practicable, but expedient for the protection of society from the ever-impending danger of invasion by the 'savages of civilisation' known as the vicious, criminal, or defective classes, and would, properly enforced, eventuate in an

effectual diminution of crime and reformation of criminals." This proposition he supports by considerations regarding "love of life," "love of sex," sexual excess, and unsatisfied sexual desires as motives to crime, as well as by observations on natural selection, and Nature's method of improving a species. Yet, notwithstanding that "this world with its inhabitants is slowly but surely moving into a new and more brilliant light, and freeing itself from the shadows of ancient errors and modern superstitions," public sentiment is hardly yet sufficiently educated to entertain seriously such an abhorrent innovation.

PERISCOPE OF SYPHILOLOGY.

By FRANCIS CADELL, F.R.C.S. Ed.

ALLEGED VACCINAL SYPHILIS.—Members of the House of Commons should note the way in which charges are sometimes brought against vaccination, and the evidence which is adduced in support of them. Last month, at Gosport, a father pleaded that he had omitted to have his child vaccinated because an older child had suffered from syphilis as a result of vaccination, and he ventured to cite the opinion of Dr Ward Cousins in support of his statement. We learn from letters which have been published in a local journal that the father had unwarrantably used Dr Cousins's name, and that, so far from encouraging the belief that the disease had arisen in this way, Dr Cousins pointed out that there was no evidence whatever of such an occurrence. The unfortunate child appears to have suffered from congenital syphilis, and the vaccinator is confident that the vaccination had nothing to do with the child's illness. It is to be hoped that wherever the story of the father is published, Dr Cousins's denial will obtain equal publicity.—*British Medical Journal*, 10th November 1888.

A CLINICAL LECTURE ON SYPHILITIC OTITIS (by Dr Matthias L. Foster).—Those lesions which are easily recognised are situated in the external portion; those affecting the internal ear are largely known only by inference from the symptoms and analogous lesions elsewhere. The auricle may be destroyed by ulcers and gummata. In the external auditory meatus may be found mucous patches, with spongy granulations, erythema, or pustules. A lesion is described which in its early stage may be mistaken for an ordinary furuncle, but the diagnosis may be established by its course after incision. A simple furuncle goes on to repair; a syphilitic one to ulceration, which may continue indefinitely. Gruber maintains that exostosis and hyperostosis of the external auditory meatus may result from syphilis, but this is not the ordinary opinion. When we come to the middle ear we find the pathology in the main

similar to that of syphilitic lesions of other mucous membranes, as of the throat and nose. The Eustachian tube may be affected with ulceration, adhesion, and stricture, which produces disastrous effects on the hearing. Gummata of the soft palate may also block up the tube. In the internal ear there is good reason to believe that there may be hyperæmia and periostitis as well as gummata. The lesions in the acoustic nerve due to syphilis do not differ from similar lesions in the other cranial nerves. As long as the lesion is confined to the Eustachian tube, the symptoms and physical signs on the membrana tympani are those of chronic catarrhal otitis media with stenosis of the Eustachian tube, and can be diagnosticated only by the appearance of specific lesions in the fauces. When the mucous membrane of the tympanum is involved, certain changes may at times be noted in the membrana. Usually it looks dry, its brilliancy is more or less lost, and it is reddened moderately or not at all, with perhaps redness at the inner end of the meatus. Its surface may become uneven and the membrana itself infiltrated. This infiltration in some cases becomes so great that the position of the malleus-handle can be recognised only by the injected vessels which run along it. Very rarely it becomes perforated. The attack of deafness is usually painless, is sudden, and may yield as suddenly to energetic antisymphilitic treatment. In these cases the deafness is evidently due to interference with the apparatus in the middle ear, because the patient can hear his own voice (autophony), and the tuning-fork can be distinctly heard when placed on the head. When the internal ear is affected, the onset is sudden; both ears are usually involved, but not of necessity simultaneously or to the same extent. The symptoms are deafness, neuralgia in the temporal and frontal bones, and tinnitus, frequently associated with giddiness. The patient should be put to bed and treated promptly with anti-symphilitic remedies. In acquired syphilis this severe form is, happily, not common. The inherited disease is, on the contrary, a rather common cause, but is much less amenable to treatment than the acquired. It is one of the most common causes of non-congenital deaf-mutism, and is more often met with in females than males. It is not known in these cases whether the disease is located in the labyrinth or in the nerve itself. The prognosis must be considered bad as regards the hearing, although quite a number of brilliantly successful cases are on record. When the true condition is recognised in an early stage, as it probably will be with increasing frequency in the future, the prognosis is very much better. In treatment we rely on mercury and iodide of potassium, either separately or in combination. Little or no reliance can be placed on local measures. Follow the same course of treatment that you would in specific lesions elsewhere, but push it energetically, remembering that time is invaluable to save the delicate mechanism of the ear from injury which can never be repaired.—*New York Medical Journal*, 21st July 1888.

THE SEXUAL INSTINCT AND ITS ABUSE.—There are some interesting remarks on this subject in a paper by Dr Campbell Clark on "The Sexual and Reproductive Functions." He has noticed that the act of masturbation is attended with a prompt rise of temperature, varying from 1 to 2 degrees in the first half-hour. Apart from mental influences, there are conditions which must influence the sexual instinct, and diet and drink take special prominence among these. There appears to be some ground for the popular idea that excess of flesh meat diet excites lust; but some members of the profession deny this. For those who are too susceptible to the sexual craving, milk diet is prescribed; and three male masturbators were subjected for four and a half months to a series of dietetic experiments, consisting of a dinner of either (1) meat, (2) fish, (3) Irish stew, or (4) rice, milk, and fruit tart. After the first three diets these patients frequently masturbated, but in no case after rice, milk, and fruit tart, which had been given twenty-three times.—*Journal of Mental Science*, October 1888.

SURGICAL PERISCOPE.

By A. G. MILLER, F.R.C.S.E.

INGUINO-PROPERITONEAL HERNIA (by William Stone Torrey, M.D., of Brooklyn, *Annals of Surgery*, March 1888).—*Inguino-properitoneal* is a term that seems to have been invented by Krönlein for a condition of matters in which it is possible for an inguinal hernia to be pushed into a (so-called) diverticulum of the peritoneum lying between the abdominal muscles and the transversalis fascia, or between that latter structure and the peritoneum itself. Under such circumstances the hernia is not *reduced*, merely displaced, and therefore the symptoms of strangulation are not relieved. In short, this is one of the varieties of reduction "*en bloc*." Dr Torrey describes a very interesting and instructive case. The diagnosis was very easy, for the hernial tumour, when pushed up the inguinal canal, was seen to bulge under the abdominal wall in the neighbourhood of the internal abdominal ring. At the operation it was ascertained that there was a considerable cavity between the fascia transversalis and the abdominal muscles. This cavity, or diverticulum, had evidently been formed by the misdirected efforts of the patient to reduce his own hernia. He had known for some time that this swelling made its appearance when he pushed up the hernia from the scrotum. The direct operation was fortunately performed, for the constriction was at the neck of the upper sac, and there were many adhesions, both old and new, which had to be carefully undone before the bowel could be returned. Dr Torrey, in remarking on the case, says that 35 cases have been recorded with 28 deaths. His own case died, but not from the operation; the patient survived four days. In referring to the literature of the

subject, Dr Torrey overlooks the paper by the late Professor Spence (*Ed. Med. Journ.*, August 1879, p. 97), in which two very important things are pointed out, viz., the mechanism of the double sac, and the diagnostic symptoms. Dr Torrey speaks of the symptoms as being obscure and the diagnosis difficult. Professor Spence, on the contrary, points out a symptom that, in his experience, was always present. He says that, after apparent reduction, besides non-relief of the symptoms of strangulation, the reduced bowel shows no tendency to return when the patient coughs or strains, or it comes down with a "bolt" after severe effort. A properly reduced hernia, he says, never does this. Another characteristic of these cases seems to be a gradual accession of the symptoms of strangulation. Dr Torrey's patient was ill for nine days, and Spence says the cases are prolonged. The result of Dr Torrey's operation proves the importance of Professor Spence's advice, that in these cases the direct operation should be performed, as thereby a thorough examination of the condition of the bowel can be best carried out.

SUCCESSFUL LAPAROTOMY AFTER EXTENSIVE INJURY TO THE INTESTINES.—"It was an aphorism of Professor Gross that every case in which fæcal extravasation into the abdominal cavity had occurred was inevitably fatal. Dr A. S. Priddy reports a case (*Journal American Medical Association*) which seems to prove an exception. A negro, aged 60 years, was shot with a 32-calibre pistol at a distance of six or eight feet, one of the bullets entering the abdomen about half an inch below the anterior superior spine of the ilium. The wounded man "ran to the stables, mounted a horse, and rode into town (Chase City, Va., distant four miles), to get a doctor to cut the balls out." He was placed under appropriate treatment, but the operation was not performed until four days later, when the abdominal symptoms and the passage of a considerable quantity of blood in the stools proved beyond doubt the question of intestinal penetration. The operation was performed in a negro cabin, but every reasonable antiseptic precaution appears to have been taken. "On opening the peritoneum a considerable quantity of bloody serum, pus, etc., escaped from its cavity, all of which had a distinct and disagreeable fæcal odour, yet there was only a trace of fæcal matter in the cavity." In addition to a contusion of the mesentery and a perforation of the meso-colon, the descending colon was "found to be lacerated longitudinally for more than six inches, extending into the sigmoid flexure." The operator states that he passed his hand through the wound and into the rectum. The operation, which lasted fifty-five minutes, was completed; the lacerated part being united with catgut suture, "improvised by soaking a fiddle-string in water the night before, and then soaking a while in carbolized oil." Six weeks after the accident—which is the latest date recorded—the patient was doing well; he can, therefore, certainly be said to have recovered from

the effects of the operation. This success, under very unfavourable surroundings, and after a grave injury, emphasizes the fact that the average American practitioner will, as a rule, attempt anything; and it is this quality of self-reliance, coupled with a certain natural ingenuity and a facile adaptation to circumstances, which enables him often to triumph in the face of grave difficulties."—*Sacramento Medical Times*.

INTESTINAL SURGERY (Dr N. Senn of Milwaukee, *Annals of Surgery*, January 1888, February, March, April, May, and June).—Dr Senn gives the results of 150 operations on animals performed "for the purpose of studying the effects of the principal varieties of intestinal obstruction," and to simplify the operations required in treatment, "and thus by shortening the time diminish the dangers from shock," for "a prolonged operation on the intestines is attended by two great risks: 1. Immediate, due to shock; 2. Remote, prolonged exposure to infection." In the animals operated on the artificial obstruction was rarely followed by vomiting. This, Dr Senn thinks, was due to their refusing all food and drink. Tympanitis was also less marked than in the human subject.

1. *Circular constriction*, as in hernia, produced gangrene from vascular engorgement, the constriction being sufficient to compress the veins, but not to stop the arterial supply.

2. *Flexion*.—This condition, which is supposed frequently to cause obstruction, always permitted fluids to pass, unless the bowel was in some way contracted also, or fixed by adhesions.

3. *Volvulus*.—When a twist was produced, fluid could not be injected along the bowel, but "propulsion of the intestinal contents by peristaltic action was carried on in a satisfactory manner;" for the volvulus became partially undone, sufficiently to allow of nutrition of the bowel.

4. *Invagination*.—Invagination could not be made while the bowel was contracted. Relaxation had to be produced by pressure. Disinvagination took place generally, and therefore Dr Senn sutured the portions of bowel together. "But even this expedient did not always succeed in retaining the malposition, as spontaneous reduction was observed in several of these cases." In two cases reduction of the invagination was effected by distention with water, in one of which laceration of the bowel occurred with subsequent peritonitis and death. In one case, though the bowel remained invaginated, there were no symptoms of obstruction. In this case there was a free passage about the size of an ordinary pencil, and the bowel became so firmly fixed in the invaginated position that it could not be undone, even after removal from the body. In one case the invaginated portion sloughed, and subsequent contraction and flexion caused fatal obstruction twenty-three days after. Two cases died from faecal extravasation after sloughing of the invaginated portion of bowel. Dr Senn considers that his experiments "demonstrate

conclusively that the danger attending the invagination increases the higher it is located in the intestinal canal. The ileo-cæcal form is less dangerous, as spontaneous reduction is more likely to take place; and gangrene of the intussusceptum, when it occurs, does so after a longer time after firm adhesions about the neck of the intussusciptions have formed, a condition which is well adapted to prevent perforation." In using fluid distention of the colon to reduce invaginated bowel, Dr Senn recommends that it should be employed early, before adhesions have formed, should be aided by anæsthesia and elevation of the pelvis, and never performed roughly or forcibly. He considers that this method of treatment is not appropriate if the obstruction is above the ileo-cæcal valve, because in three instances in which he forced water past the valve into the small intestine the colon was injured to an extent that would have proved fatal.

5. *Enterectomy*.—The two risks are: 1. Immediate—the traumatism; 2. Remote—the impairment of digestion. In all Dr Senn's cases of *extensive* resection death resulted from marasmus, although the animals fed well. In such cases the remaining bowel becomes hypertrophied, but this does not make up for the loss. In the cases of recovery the animals' fæces contained undigested fat, indicating that the intestinal secretions have to do with the digestion of fatty matters. Excision of the entire colon was always fatal. To test the question of whether the removal of a large portion of bowel, or the diminution of the digestive surface, was the cause of the marasmus, Dr Senn performed several experiments, in which he excluded a considerable portion of bowel from its physiological functions. This he did by dividing the bowel at two points and suturing the upper proximal to the lower distal end. The excluded portion, of course, became atrophied, but the danger to life was not so great as when the bowel was cut away. This points out that in certain cases in which excision has hitherto been practised exclusion may be preferred.

6. *Enterorrhaphy*.—Dr Senn performed, and recommends a method of suture of his own, which is too lengthy to be quoted here. His experiments show that gangrene of the invaginated portion does not occur unless some mistake is made (pp. 109 to 112, and 174 to 177).

7. *Nothnagel's Test*.—Dr Senn's experiments on dogs and cats corroborated Nothnagel's observations that chloride of sodium, when brought in contact with the serous surface of bowel, causes ascending peristalsis. He says,—“If, in the human subject, these observations could be verified, it would be of great practical importance to surgeons in operations on the intestinal canal, whenever it becomes necessary to determine which is the ascending or descending part of the bowel.”

8. *Transplantation of the Omental Flap*.—Dr Senn noticed that wherever adhesion of the omentum to a sutured surface took place

no perforation ever occurred. "To anticipate Nature in protecting the peritoneal cavity in this manner," he made several experiments, suturing flaps of omentum on to bowel. The advantages likely to arise from this procedure are: 1, rest—the omentum acting somewhat like a splint; 2, additional mechanical protection against perforation, and prevention of the entrance of pus or contents of the bowel into the peritoneal cavity.

9. *Intestinal Anastomosis*.—This means the establishment of continuity of bowel above an obstruction with a portion below; in other words, the formation of a fistulous communication. This was first advocated by Maisonneuve, but was condemned, because it was thought that faecal accumulation would take place in the excluded portion of intestine. In Dr Senn's experiments this feared accumulation did not occur. On this account, and because the operation entails comparative little risk to life, Dr Senn thinks the operation "has a great future." He recommends approximation of the surfaces of perforated bowel by means of two bone plates, one inside each portion of bowel. He gives minute directions as to how the procedure should be managed (pp. 179 and 180). The results he gives under the following heads:—

a. *Gastro-enterostomy*, union of stomach with intestine, excluding the duodenum. All the animals recovered except one, which died from a complication that had nothing to do with the fistula. The bone plates in the stomach were digested in from thirty-six to forty-eight hours.

b. *Jejuno-ileostomy*.—With perforated bone-discs the operation took only fifteen minutes. Such an operation will usually take an hour with the Lembert stitches. After Dr Senn's operation the animals generally recovered, while under the latter circumstances they frequently died. In commenting on the results of his operations, Dr Senn takes occasion to refer to this very frequently, and to urge the superior advantages of the *bone-disc* operation.

Reasoning from the above results, Dr Senn makes a suggestion that it is strange has not been put to the proof long ago. When there is obstruction, say at the cæcum, a very common locality, by intussusception, or from some other cause, if this cannot be undone, why not, instead of resecting the obstructed bowel, make a communication from the proximal to the distal side of the cæcum past the obstruction? In other words, the proposal is to make a fistulous communication from the ileum to the colon, excluding the obstructed cæcum. Dr Senn did this on several animals successfully, and in no case did accumulation of faeces occur in the excluded portion of bowel. He carries this proposal of his rather far, however, when he recommends in cases of obstruction of the colon to unite the ileum to the rectum. Surely it would be simpler and better to make an artificial anus.

Experiments were also made by Dr Senn to demonstrate the exact time required for adhesion and subsequent union of serous

surfaces. It has long been well known that peritoneal surfaces united very quickly, and this fact has been made use of in many operations. Dr Senn found adhesion by "plastic lymph" as early as six hours, firm union by twelve hours, and organized vascular union after forty-eight hours. Irritation by scarifications of the serous surfaces hastened the process of adhesion and union, general peritonitis not being induced. Irritation by chemical substances, such as iodide of iron or iodine, did not hasten union, but rather retarded the healing process.

DUODENOSTOMY AND GASTRO-ENTEROSTOMY.—Mr F. B. Jessett, F.R.C.S., Surgeon to the Cancer Hospital, London, has courageously published two fatal cases in the *Lancet* for 7th April 1888. The first was a case of cancer of the pylorus in which excision was to be attempted, but the patient becoming very low, the duodenum was brought to the wound and secured there. The bowel was opened on the third day. There was a tendency to regurgitation of food, and bile at the fistula. The patient improved somewhat at first, but died a month after the operation. The second case was diagnosed as cancer of the pylorus. Union of the jejunum to the stomach was effected (gastro-enterostomy). The patient died on the tenth day after the operation. At the post-mortem examination the case was found to be one of simple ulcer of the stomach. The fistula between the stomach and bowel was perfect, and there was no peritonitis. Death was supposed to be due to kinking of the bowel at its attachment to the stomach.

Part Fifth.

MEDICAL NEWS.

ROYAL COLLEGE OF PHYSICIANS, EDINBURGH.—The following gentlemen passed their final examination for the degree in Medicine at the sittings held on 8th November 1888, and were admitted L.R.C.P. Ed.:—Wm. Doughty, Portobello; Theophilus Bulkeley Hyslop, London; Henry Breen, Cavan, Ireland; Laurence Kerigan, Mullingar, Ireland; Arthur Leche, Bristol.

THE Second Session of the Intercolonial Medical Congress will be held in Melbourne, under the presidency of Mr T. Naghten Fitzgerald, F.R.C.S.I., during the week commencing 7th January 1889. A hearty invitation is extended to members of the profession outside of Australasia, and special inducements held out to them to attend. The various sections are to be presided over by men whose names are well known in professional circles, and we are glad to observe that several of them are old Edinburgh students and graduates. There seems to be no doubt, from what has been already promised in the way of papers and discussions, that the Congress will be a success. Professor H. B. Allen, of Melbourne University, is the general secretary.

PROF. A. LESSER'S *Atlas der gerichtlichen Medicin*, dessen erste Abtheilung im Verlage von Hirschwald in Berlin erschienen ist,

wird im Jahre 1889 durch die Verlagsbuchhandlung von S. Schottlaender in Breslau fortgesetzt.

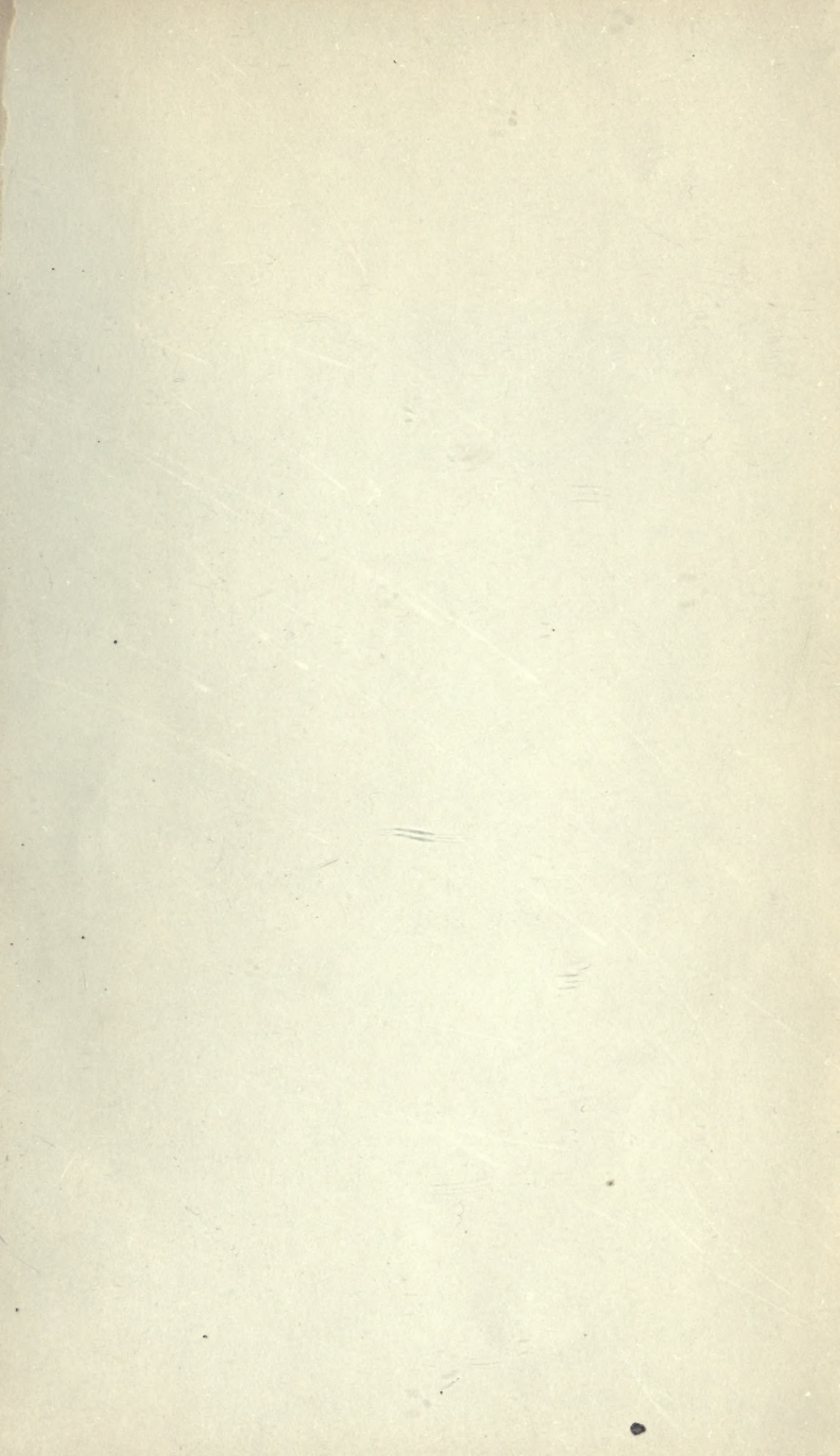
TOILET LANOLINE (Burroughs, Wellcome, & Co., Snow Hill Buildings, London, E.C.)—Toilet Lanoline is a pleasant and soothing application to the skin in the case of roughness and chapping. It is a combination of lanoline and purified petroleum jelly, slightly scented with otto of rose; and is prepared for use in a convenient form, in a tube such as is used for oil-colours. This simple and harmless application cannot fail to be successful.

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- THOMAS VICARY,—*The Anatomie of the Bodie of Man.* N. Trübner & Co., Lond., 1888.
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 American Lancet,—July-Nov.
 American Practitioner and News,—June 9-Nov. 10.
 Annales d'Oculistique,—June-Oct.
 Annales de Dermatologie, etc.,—June-Oct.
 Annales des Maladies de l'Oreille, etc.,—July-Nov.
 Annales Medico-Chirurgicales,—June-Sept.
 Archives de Tocologie,—July-Oct.
 Archives Générales de Médecine,—July-Nov.
 Archives of Gynæcology,—July-Nov.
 Archives de Laryngologie, etc.,—June 15-Sept. 15.
 Archives of Pediatrics,—July-Nov.
 Asclepiad,—Sept.
 Australasian Medical Gazette,—May-Oct.
 Baby,—Oct.
 Berliner Klin. Wochenschrift,—June 25-Nov. 26.
 Birmingham Medical Review,—July-Nov.
 Births, Deaths, and Marriages, Monthly Return of,—June-Sept.
 Do., Quarterly Return,—June-Sept.
 Boston Medical and Surgical Journal,—June 14-Nov. 8.
 Bollettino Farmaceutico, July.
 British Journal of Dermatology,—Nov.
 British Medical Journal,—June 30-Nov. 24.
 Bristol Medical-Chirurgical Journal,—June-Sept.
 British Gynæcological Journal,—Aug.
 Brooklyn Medical Journal,—June-Oct.
 Bulletins et Mémoires de la Société Obstétricale et Gynécologique de Paris,—June, July.
 Bulletin Général de Thérapeutique,—June 30-Nov. 15.
 Centralblatt für Gynäkologie,—June 30-Nov. 24.
 Centralblatt für Chirurgie,—June 30-Nov. 24.
 Centralblatt für Bacteriologie und Parasitenkunde,—Jahrg. ii. Bd. 3, No. 26, Bd. 4, Nos. 1-21.
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 Chicago Medical Standard,—July.
 Chicago Medical Times,—Sept.
 Chicago Medical Journal and Examiner,—July-Nov.
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 France Médicale,—June 23-Nov. 24.
 Gazette des Hôpitaux,—June 26-Nov. 24.
 Gazette Médicale de Paris,—June 30-Nov. 24.
 Gazzetta Medica di Torino,—May 25-Oct. 15.
 Gazette Hebdomadaire des Sciences Médicales de Bordeaux,—July 8-Nov. 25.
 Glasgow Medical Journal,—July-Nov.
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 Jahrbuch für Kinderheilkunde,—Band 28, Heft 2, 4.
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 Journal de Médecine de Paris,—July 15-Nov. 25.
 Journal of Anatomy and Physiology,—July, Oct.
 Journal of Comparative Pathology and Therapeutics,—Sept.
 Journal of Cutaneous and Genito-Urinary Diseases,—July-Nov.
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 Journal of Mental Science,—July, Oct.
 Journal of Nervous and Mental Disease,—June-Sept.
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 Klinische Monatsblätter für Augenheilkunde,—Aug.-Nov.
 Liverpool Medico-Chirurgical Journal,—July.
 London Medical Record,—July-Nov.
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 Medical Press and Circular,—June 27-Nov. 21.
 Medicina Contemporanea,—July, Aug.
 Morningside Mirror,—July-Oct.
 New York Medical Journal,—June 16-Nov. 17.
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 Nordiskt Medicinskt Arkiv,—Band 20, Nos. 1-11.
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 Philadelphia Medical News,—June 23-Nov. 17.
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 Practitioner,—July-Nov.
 Proceedings of Society for the Study and Cure of Inebriety,—Aug.-Nov.
 Progrès Médical,—June-Nov. 24.
 Revue de Chirurgie,—July-Nov.
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 Revue Générale de Clinique et de Thérapeutique,—June 28-Nov. 22.
 Sacramento Medical Times,—July-Nov.
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 St Louis Courier of Medicine,—July-Oct.
 Therapeutic Gazette,—June-Nov.
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 Vegetarian,—July 28.
 Virchow's Archiv,—July-Nov.
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